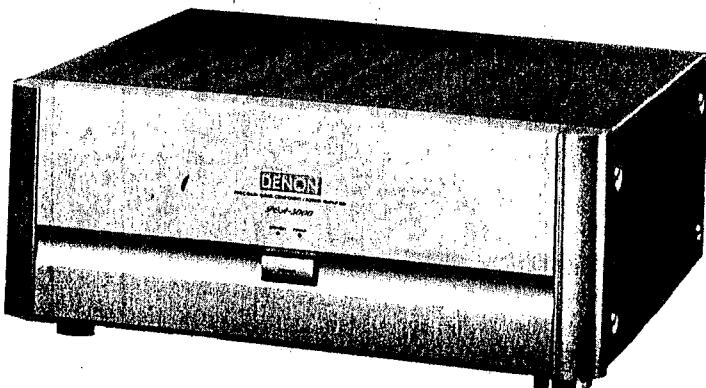


# DENON

Hi-Fi Component

## SERVICE MANUAL MODEL POA-5000 STEREO POWER AMPLIFIER

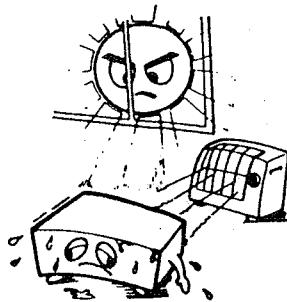


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**NIPPON COLUMBIA CO., LTD.**

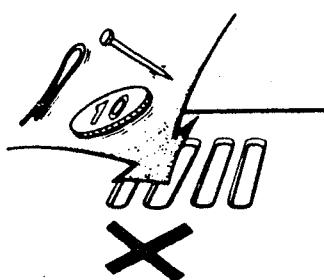
## NOTE ON USE

**Be careful of high temperatures**

- Do not place the set in a location where it will be exposed to direct sunlight or near a heating appliance.

**Caution on rack/cabinet installation**

- Avoid installing the set in a closed-type rack.
- When installing in a rack or cabinet, provide a sufficiently large ventilation opening to promote heat radiation.

**Do not allow foreign matter into the equipment**

- Be especially careful of needles, hair pins, and coins getting into the set.

**Caution on humidity, water, and dust**

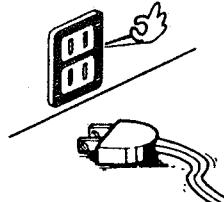
- Do not place the set in a location where there is high humidity or a lot of dust.
- Flower vases or other items containing water should not be placed on top of the set.

**Care of the case**

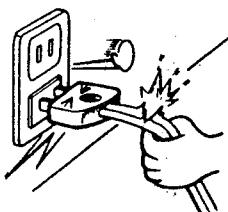
- Avoid the use of pesticides near the set as well as wiping the case with benzine, thinner or other solvents since they may cause a change in quality or color. Use a soft cloth when wiping away dirt and follow the instructions carefully when using chemically treated cloths.

**Do not open the case**

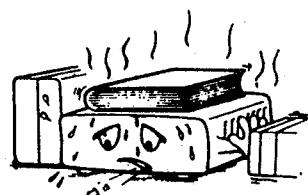
- Opening the top cover or the bottom plate of the case and inserting your hand is dangerous. Do not open the case.
- If some trouble arises with the performance of the set, remove the power plug soon and contact the store where the set was purchased or a nearby dealer.

**During your absence**

- When not using the set for an extended period such as when taking a trip, be sure to disconnect the plug from the receptacle.

**Care with the power cord**

- When removing the plug from the receptacle, do not pull the power cord; be sure to hold the plug when removing it.

**For sets with ventilation holes****Do not block the ventilation holes of the set**

- Blocking of the ventilation holes will lead to damage of the set.
- The ventilation holes are very important for heat radiation from within the set. Care must be taken since placing an object against the holes will result in an extreme rise of temperature within the set.

**INSTALLATION PRECAUTIONS**

Install the POA-5000 horizontally. Leave at least 15 cm of space between this unit and other components on top of the amplifier.

**Protective Circuit**

This set is equipped with a high speed protective circuit. This circuit protects the internal circuitry from damage due to large currents flowing when the speaker jacks are not completely connected or when an output is generated by a short circuit. This protective circuit's operation cuts off the output to the speakers. In such a case, be sure to turn the power to the set off and check the connections to the speakers. Then turn the power on again. After muting for several seconds, the set will operate normally.

**Please check to make sure the following items are included with the main unit in the carton:**

- (1) Operating Instructions ..... 1
- (2) Remote connecting cable ..... 1

**SPECIFICATIONS****■ POWER AMPLIFIER SECTION**

|   |                  |  |
|---|------------------|--|
| • <b>Rated output power:</b>            | STEREO: FRONT    | 100 W + 100 W (8 ohms load, T.H.D. 0.02%)<br>140 W + 140 W (6 ohms load)                                   |
|   | CENTER           | 50 W + 50 W (8 ohms load, T.H.D. 0.02%)<br>70 W + 70 W (6 ohms load)                                       |
|   | REAR             | 50 W + 50 W (8 ohms load, T.H.D. 0.02%)<br>70 W + 70 W (6 ohms load)                                       |
|   | MONAURAL: FRONT  | 200 W (8 ohms load, T.H.D. 0.02%)  |
|   | CENTER           | 100 W (8 ohms load, T.H.D. 0.02%)  |
|   | REAR             | 100 W (8 ohms load, T.H.D. 0.02%)  |
| • <b>Total harmonic distortion:</b>     | STEREO/MONAURAL: | 0.008% (20 Hz ~ 20 kHz, -3 dB at rated output, 8 ohms)   |
| • <b>Intermodulation distortion:</b>    | STEREO/MONAURAL: | 0.005% or less (7 kHz/60 Hz = 1/4 at a load of 8 ohms and amplitude output equivalent to the rated output) |
| • <b>Power bandwidth:</b>               | STEREO/MONAURAL: | 5 Hz ~ 50 kHz (T.H.D. 0.05%, -3 dB at rated output, 8 ohms)  |
| • <b>Frequency response:</b>            | STEREO:          | 1 Hz ~ 100 kHz (At a load of 8 ohms and 1 W output)  |
|   | MONAURAL:        | 2 Hz ~ 80 kHz (At a load of 8 ohms and 1 W output)   |
| • <b>Input sensitivity:</b>             | STEREO:          | 1 V  |
|   | MONAURAL:        | 0.7 V  |
| • <b>Input impedance:</b>               | STEREO:          | 47 kohms   |
|   | MONAURAL:        | 47 kohms   |
| • <b>Output impedance:</b>              | STEREO:          | 0.08 ohms (1 kHz)  |
|   | MONAURAL:        | 0.16 ohms (1 kHz)  |
| • <b>S/N ratio<br/>(IHF a Network):</b> | STEREO:          | 118 dB   |
|   | MONAURAL:        | 113 dB   |

**■ GENERAL**

|                             |  |
|-----------------------------|--|
| • <b>Power supply:</b>      | AC 120 V/60 Hz (for U.S.A. model)<br>AC 110/220 V 50/60 Hz (for multi-voltage model) |
| • <b>Power consumption:</b> | 6.0 A (for U.S.A. model)<br>450 W (for multi-voltage model)                          |
| • <b>Dimensions:</b>        | 434 (W) x 185 (H) x 415 (D) mm<br>(17-3/32") x (7-9/32") x (16-11/32")               |
| • <b>Weight:</b>            | 24.2 kg (53 lbs 6 oz)  |

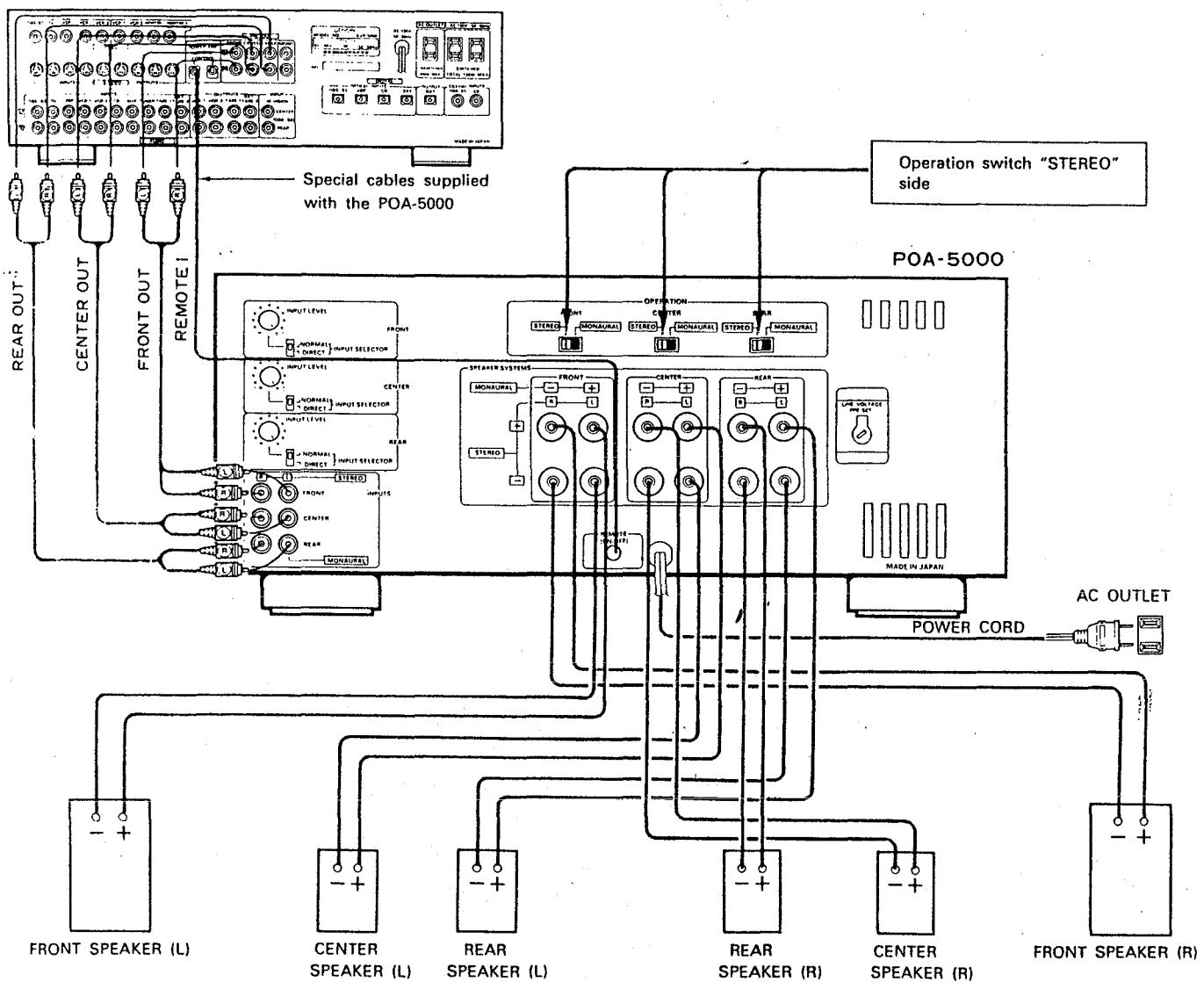
\* Specifications and design are subject to change without notice for the purpose of improvement.

## CONNECTIONS

[When used for stereo operation]

Preamplifiers for surround and other reproduction equipment

AVP-5000 connection examples (When connecting another preamplifier, see the accompanying instruction manual.)



### Precautions When Making Connections

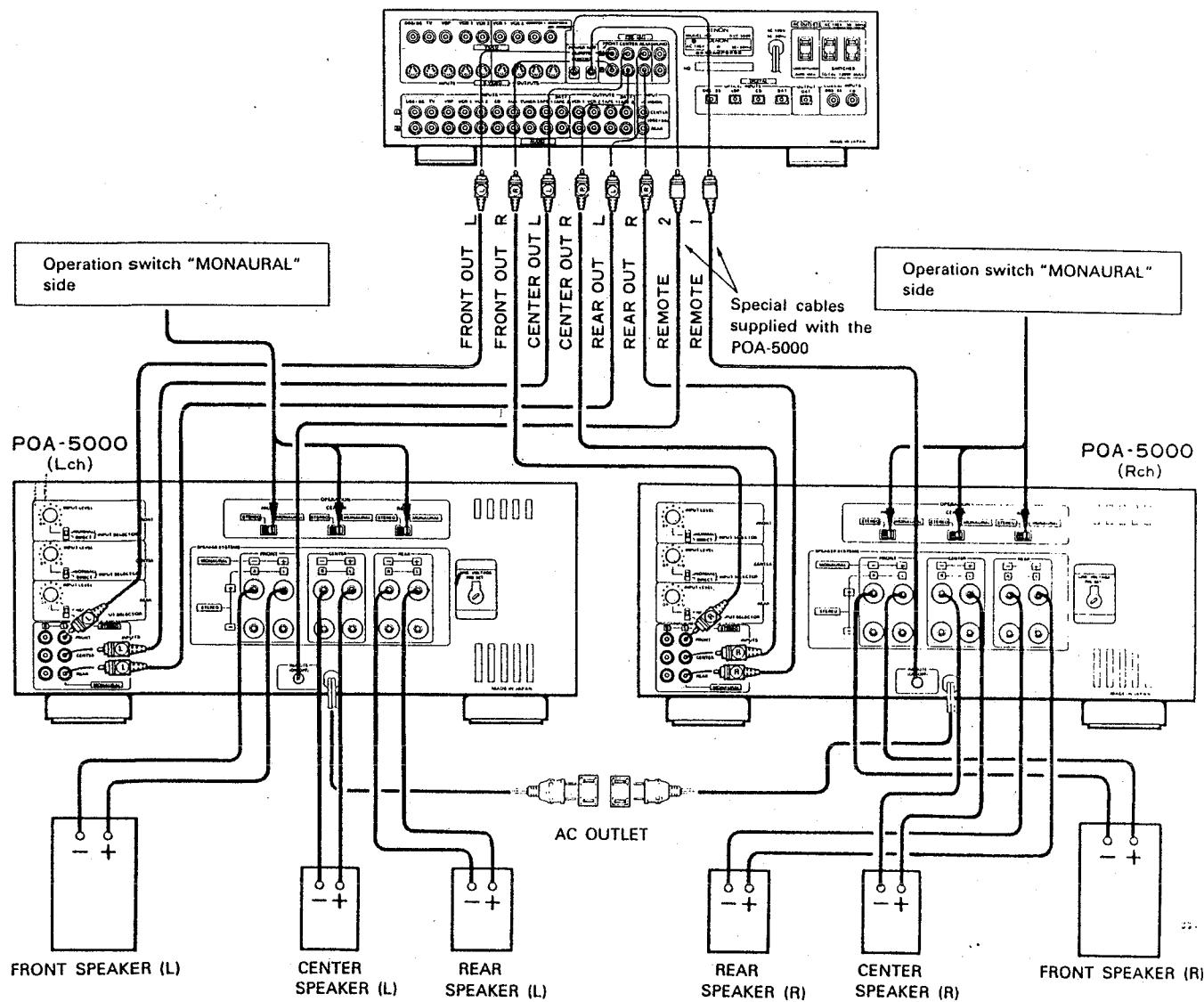
- Do not plug the power cord into the power outlet until all the connections have been completed.
- After checking the left and right channels, make proper connections: L with L, and R with R.
- Insert the plugs securely. Incomplete connections will cause noise to be generated.
- Note that bundling pin-plug cords with the power cord or placing pin-plug cords close to the power transformer might lead to the occurrence of hum or noise.

### NOTE:

- Be sure to switch off the power before changing the position of the operation switch.
- The connection method for the speakers will differ with stereo and monaural operation.
- When the settings of the operation switches are made separately for each of FRONT, CENTER, and REAR, the input and speaker output connections must be made to match the stereo/monaural operation of the various sections.

**[When used for monaural operation]****Preamplifiers for surround and other reproduction equipment**

AVP-5000 connection examples (When connecting another preamplifier, see the accompanying instruction manual.)



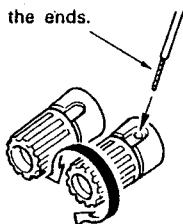
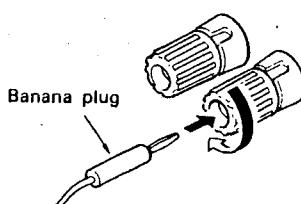
① Peel the insulation off the end of the cord.

② Twist the conductors

③ Turn the speaker terminals counterclockwise to loosen them.

④ Insert the conductor section of the cord all the way into the terminal and tighten the terminal in the clockwise direction.

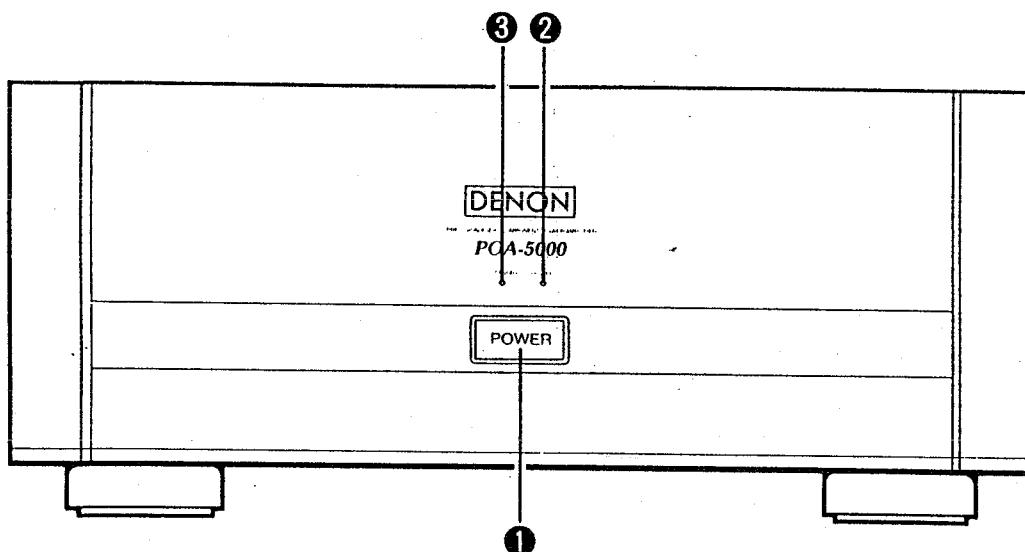
**Speaker Terminal Connections**  
Twist the conductors  
tightly or otherwise  
process the ends.

**Banana Plug Connections**

Tighten the terminal by turning clockwise, then  
insert the banana plug.

## NAMES AND FUNCTIONS OF THE PARTS

## Front Panel

**① POWER (Power switch)**

Pressing this switch causes the POWER indicator ② to light and the power to be switched on. The muting circuit will operate for several seconds to prevent the noise that arises when the power is switched on, then the amplifier will enter the normal operating condition.

Connecting the output of a DENON component equipped with a REMOTE output to REMOTE input ⑨ of the rear panel in this condition (using the remote cable supplied with this amplifier) will allow the operating condition of the amplifier to be switched to standby or normal operation, synchronized with the power on/off state of the component at the other side. Pressing the POWER switch once again will cause the indicator to go off and the power to be switched off.

**② POWER (Power indicator)**

The indicator lights up (red) when the power is on and goes off when the power is switched off.

**③ STANDBY (Standby display)**

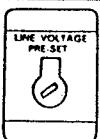
This indicator lights up (orange) to indicate the standby condition when the power is switched off with the component of the other side which is connected with the remote cable.

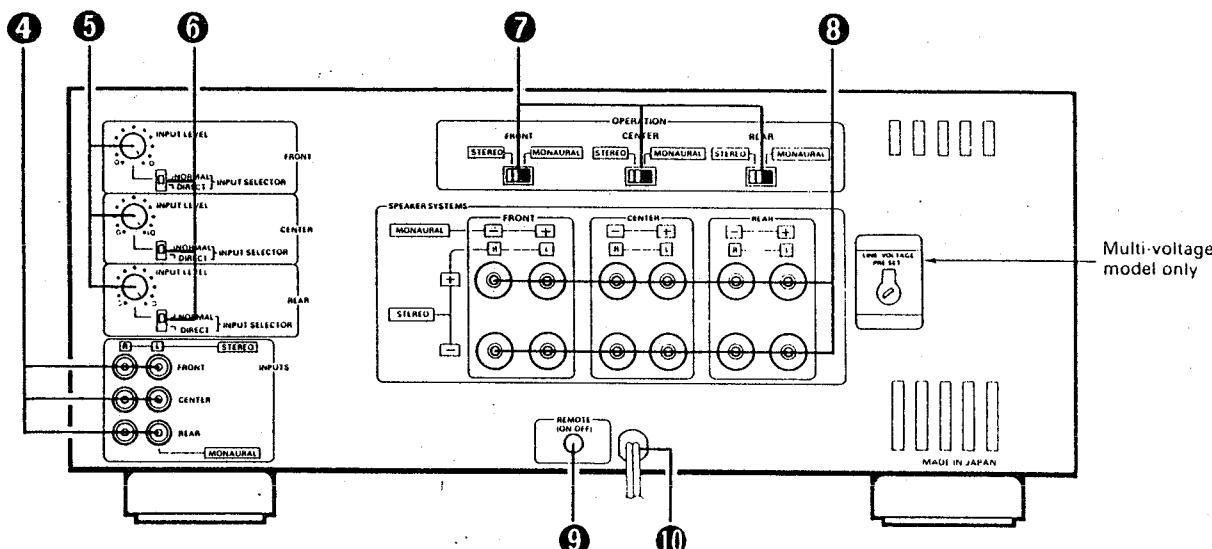
**NOTE:**

- When you will be away for a long period such as when on a trip, set the POWER switch of this amplifier to the off position, rather than use the standby condition.

**• LINE VOLTAGE (Voltage select switch) . . . For Multi-voltage model only.**

- \* The desired voltage may be set with the VOLTAGE SELECTOR KNOB on the back panel using a screw driver.
- \* Do not twist the VOLTAGE SELECTOR KNOB with excessive force. It may be damaged.
- \* If the voltage select switch does not turn smoothly, see qualified serviceman.



**Rear Panel****④ INPUTS (Input jacks)**

These are the input jacks for each of the FRONT, CENTER, and REAR sections. Make connections to correspond with each output of an AV surround preamplifier, etc. When OPERATION switch ⑦ is set to MONAURAL, the left channel side becomes a monaural input jack. Do not connect the right channel side at this time.

**⑤ INPUT LEVEL (Input level controls)**

These controls are used to adjust the input level of each of the inputs: FRONT, CENTER, and REAR.

**⑥ INPUT SELECTOR (Input selection switches)**

Set to the "NORMAL" side when using the INPUT LEVEL controls ④. This allows input level adjustments to be made. Setting to the "DIRECT" side makes the input signal bypass the input level control and applies the signal directly to the power amplifier to provide even higher quality reproduction.

**⑦ OPERATION (Operation switch)**

This switch provides switching between stereo and monaural operation to correspond with each input of the FRONT, CENTER, and REAR sections.

**NOTE:**

- This amplifier permits a bridged connection (BTL) of the 2 amplifiers (of the left and right channels) for monaural operation which uses a positive and negative polarity amplifier.

**• "STEREO"**

The amplifier is set to this position before being shipped from the factory. This setting provides 2-channel (left and right) stereo operation for each input.

**• "MONAURAL"**

This setting uses the monaural input jack (left channel side) for monaural operation with each input.

**NOTE:**

- The switches are equipped with covers to prevent erroneous operation. Use a flat-bladed screwdriver with a thin tip from the space at the top side, and be sure to perform the switching with the power off.
- Note that the connection method of the input jacks and the speaker terminals will differ depending on stereo or monaural operation. (See the connection diagrams on Pages 6 and 7.)
- This amplifier contains a 2-channel power amplifier for each of the FRONT, CENTER, and REAR sections for a total 6-channel structure. Selection of stereo or monaural operation with each OPERATION switch allows this amplifier to be used as a 6-, 5-, 4-, or 3-channel power amplifier.

**⑧ SPEAKER SYSTEM (Speaker connection terminals)**

Connect the speaker cords here. Be sure to connect the same polarity speaker system and amplifier speaker terminal (that is, (+) with (+), and (-) with (-)).

**NOTE:**

- The speaker connection method will differ for stereo and monaural operation. (See the connection diagrams on Pages 4 and 5.)

**⑨ REMOTE (Power Supply Remote Input Jack)**

Connect this jack with a DENON component equipped with a REMOTE (power supply remote output) jack. Use the special cable supplied with this amplifier for the connections.

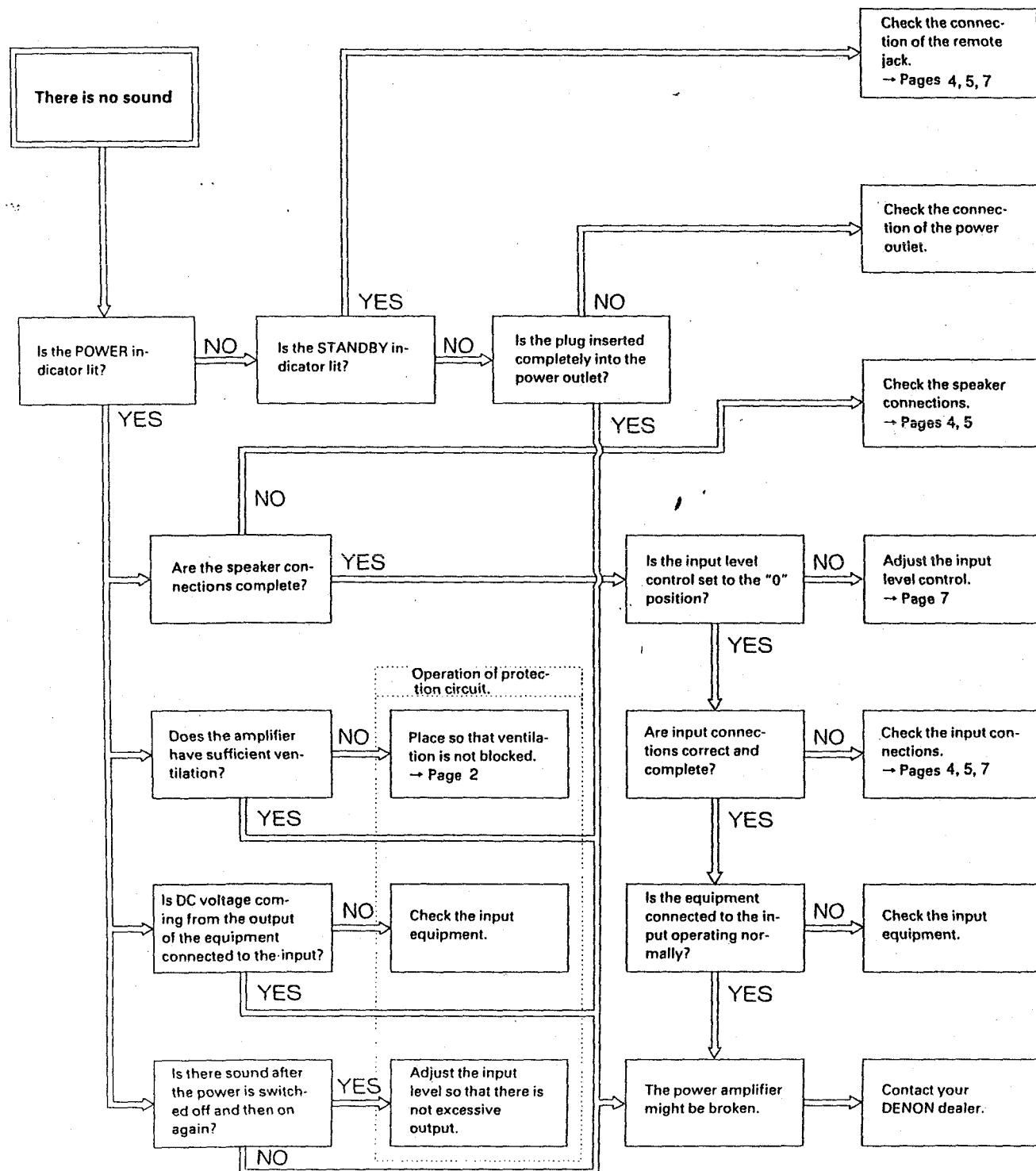
**⑩ Power Cord**

Plug this cord into the power outlet.

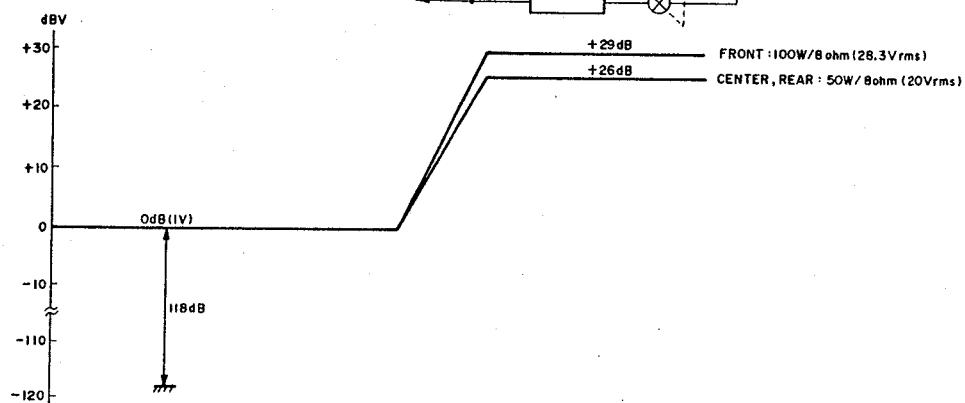
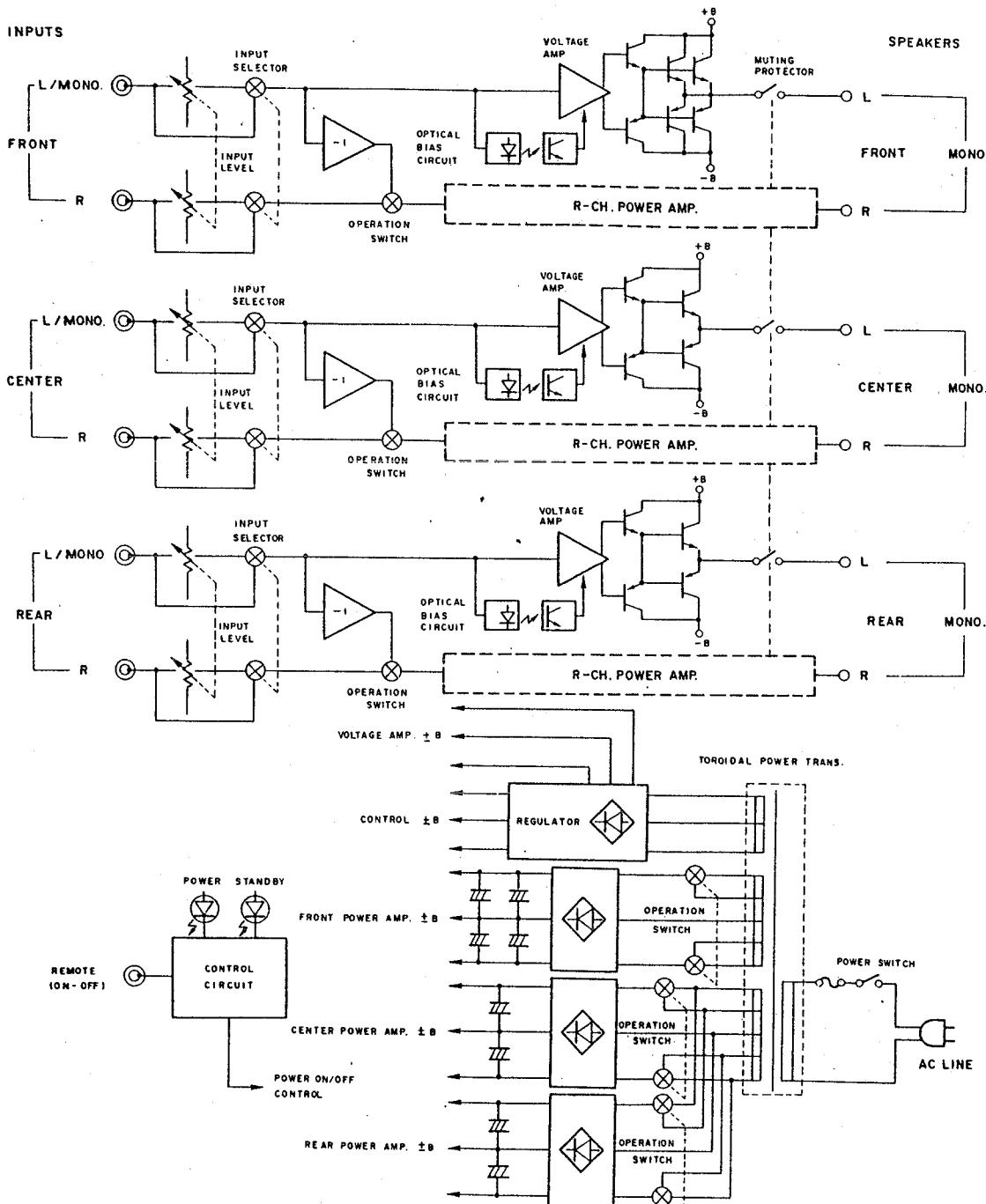
## TROUBLESHOOTING

1. Have all connections been made PROPERLY?
2. Have you followed all operational instructions correctly?
3. Check speaker and the preamplifier systems for proper operation.

When your unit does not seem to be operating correctly, first check the items in the following table. If the symptom does not correspond to any of the problems as shown below, turn off the power sources immediately and contact your DENON dealer.



## BLOCK &amp; LEVEL DIAGRAM

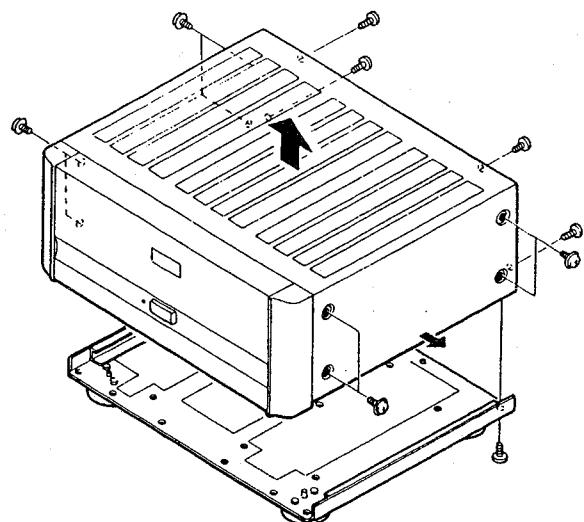


## DISASSEMBLY INSTRUCTIONS

### 1. Top Cover and Bottom Cover

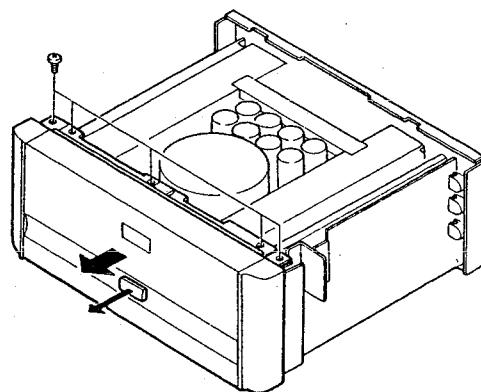
- 1) Remove 8 screws on both sides and 4 screws on rear side.  
Stretch side plates of Top Cover sidewise, and pull up Top Cover in arrow direction.
- 2) Remove 20 screws and detach Bottom Cover.

Note) 8 Zinc coated screws are attached on right and left of Bottom Cover. Do not remove those screws.



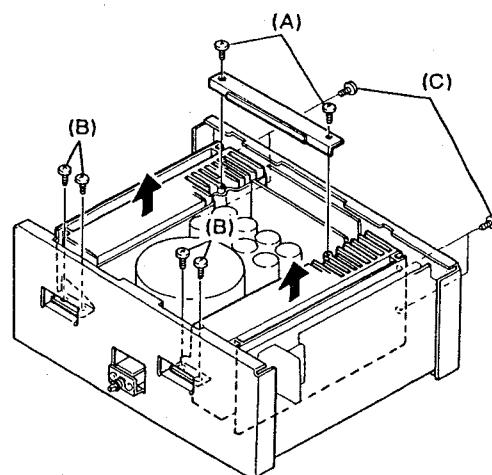
### 2. Front Panel

After pulling out power switch knob to front, remove 5 upper screws on Front Panel and pull Front Panel in arrow direction.



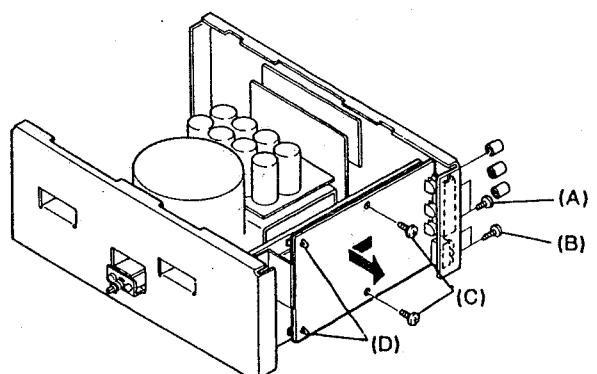
### 3. Power Unit (Left/Right)

Remove 2 screws (A) and detach Heat sink tank supporter. Secondly, remove 4 front screws (B) and 4 rear screws (C), then detach left and right Power Unit in arrow direction respectively.

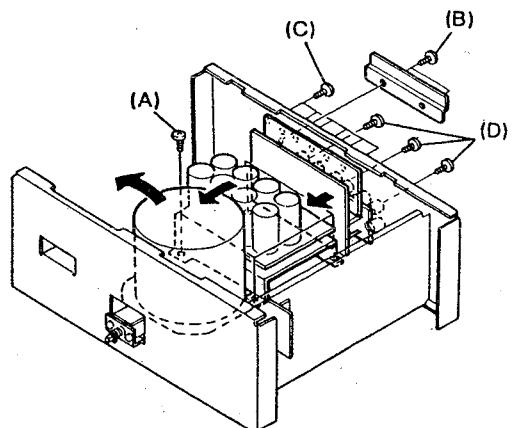


**4. Input P.W.B.**

- 1) Take off 3 knobs of volume knob (FRONT, CENTER, REAR) of input level which is located on rear side.
- 2) Remove rear 2 screws (A) fixing input volume holder to body, and remove 2 rear screws(B) fixing input terminal (RCA Jack).
- 3) Remove 2 screws (C) fixing input P.W.B. and detach P.W.B. from holder (D) on two places. Then pull out P.W.B. in arrow direction.

**5. Power Unit and Speaker Terminal**

- 1) Remove 8 screws fixing power transformer.
- 2) Remove 4 screws (A) of holder fixing power P.W.B.
- 3) Remove rear 2 screws (B) and detach switch guard of operation switch.
- 4) Remove 6 screws (C) fixing operation switch.
- 5) Remove 3 screws (D) fixing Speaker terminal.
- 6) Remove terminals of transformer, power unit, and speaker in arrow direction.



## ADJUSTING AND CHECKING

### ● Adjustment of idling current.

- 1) Measurement instruments required for adjustment.
- \* Digital voltmeter      \*Low frequency oscillator

### 2) Preset

- 1) Place the unit where having normal use conditions avoiding abnormally ventilated places such as nearby electric fans.
- 2) Set knobs, switches and others as follows:

- POWER (Power switch) → OFF (■)
- Rear side INPUT LEVEL (Volume control knob) → (▽) minimum
- Rear side SPEAKER SYSTEM (Speaker terminal) → No load ( no connection with speakers, dummy resistors, etc.)
- Rear OPERATION SWITCH (Operation shifting switch) → STEREO

### 3) Adjustment

#### 1) Initial setting.

- Remove Top Cover and set semi-fixed volume of Power Amplifier (1U-2236-1,-2), VR501, 502, 503, 504, 601, 602, 603, 604, 701, 702, 703, 704 at center position.

#### 2) Idling current adjustment.

- Connect DC voltmeter to each test point (T.P.) of FRONT, CENTER, REAR and each of L/R channels, and turn Power switch "ON" (■) and turn semi-fixed volume for each channel to set to voltage values in Table 1.

Table 1

| Adjust channel |   | Adjust spot | Test point | Adjust voltage value (DC)  |               |
|----------------|---|-------------|------------|----------------------------|---------------|
|                |   |             |            | Immediately after power ON | After 10 min. |
| FRONT          | L | VR501       | FRONT-L    | 1±0.5mV                    | 10±1mV        |
|                | R | VR502       | FRONT-R    | 1±0.5mV                    | 10±1mV        |
| CENTER         | L | VR601       | CENTER-L   | 1±0.5mV                    | 4±1mV         |
|                | R | VR602       | CENTER-R   | 1±0.5mV                    | 4±1mV         |
| REAR           | L | VR701       | REAR-L     | 1±0.5mV                    | 4±1mV         |
|                | R | VR702       | REAR-R     | 1±0.5mV                    | 4±1mV         |

Note) Adjust voltage value between test points denotes the absolute value.

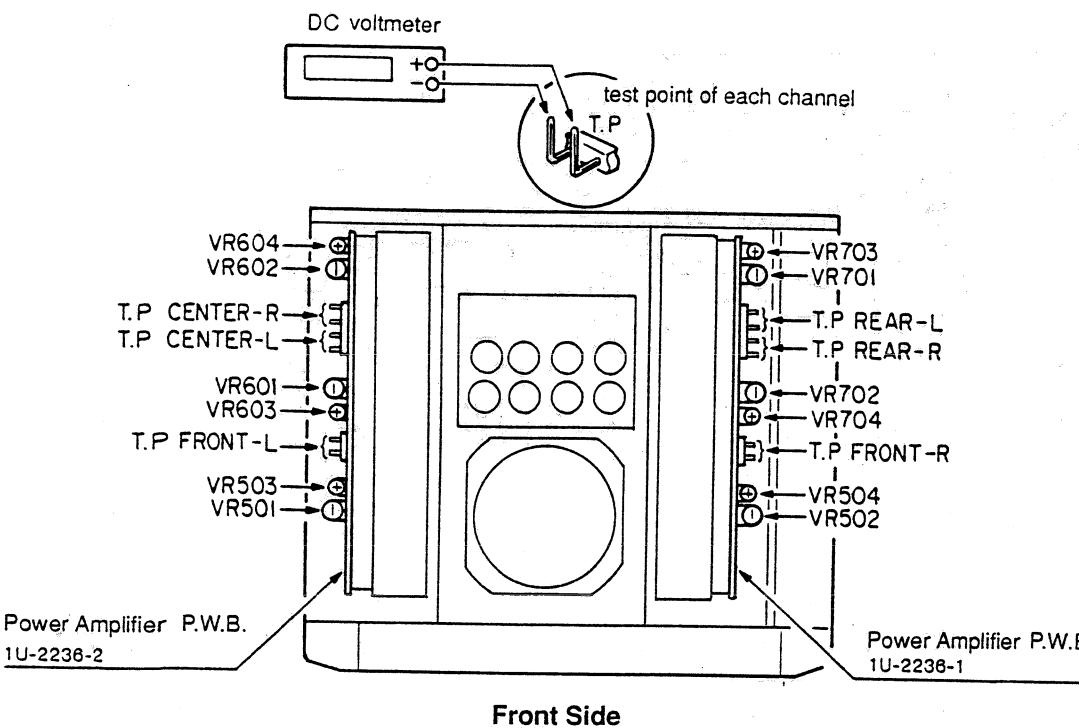
### 3) Adjustment of "Optical class A" idling current.

- Connect low frequency oscillator to each input terminal of each L/R channel of FRONT, CENTER, REAR, and input sine wave of 50m Vrms 1KHz.
- Set rear side INPUT LEVEL volume maximum (▽) at that time confirm that indication of DC voltmeter are increasing by steps from the adjust values in Table 1.
- Adjust voltage of each channel according to Table 2.

| Adjust channel |   | Adjust spot | Test point | Adjust voltage value (DC)      |               |
|----------------|---|-------------|------------|--------------------------------|---------------|
|                |   |             |            | Immediately after the increase | After 10 min. |
| FRONT          | L | VR503       | FRONT-L    | 40±5mV                         | 55±2mV        |
|                | R | VR504       | FRONT-R    | 40±5mV                         | 55±2mV        |
| CENTER         | L | VR603       | CENTER-L   | 45±5mV                         | 60±2mV        |
|                | R | VR604       | CENTER-R   | 45±5mV                         | 60±2mV        |
| REAR           | L | VR703       | REAR-L     | 45±5mV                         | 60±2mV        |
|                | R | VR704       | REAR-R     | 45±5mV                         | 60±2mV        |

Note) Adjust voltage value between test points denotes the absolute value.

Table 2

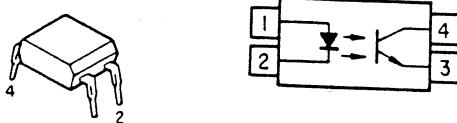
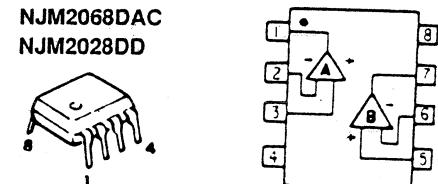


- Confirmation of neutral point voltage.
  - 1) Connect a DC voltmeter to speaker terminal.
  - 2) Turn power on for the unit.
  - 3) Set rear side INPUT LEVEL volume at maximum (○).
  - 4) Confirm that voltage of digital voltmeter is within the range of ±100 mV (for each channel L/R).

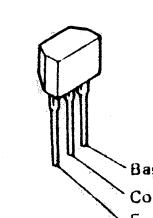
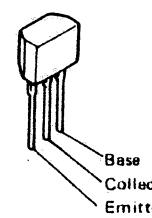
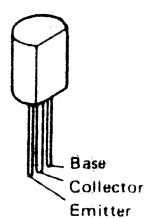
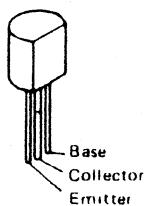
## SEMICONDUCTORS

### ● IC

TLP521-1 (BL)

NJM4558DD  
NJM2068DAC  
NJM2028DD

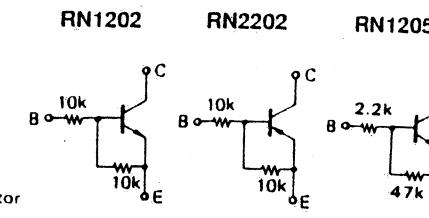
### ● Transistors

2SA988 (E/F)  
2SC1841 (E/F)  
2SD11112SA1145 (O)/(Y)  
2SC4208A  
2SD667A (C)  
2SC2705 (O)/(Y)2SA1048 (GR)  
2SC2458 (BL)  
RN1202 (10k-10k)  
RN1205 (2.2k-47k)  
RN2202 (10k-10k)

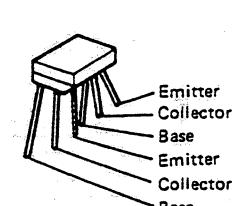
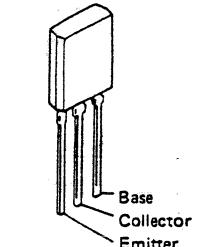
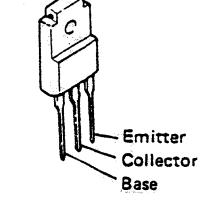
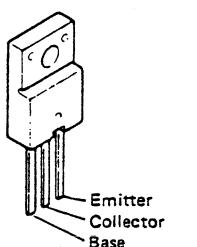
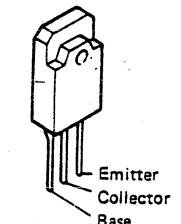
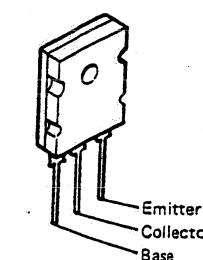
RN1202

RN2202

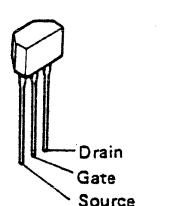
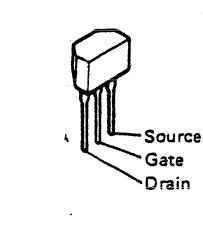
RN1205



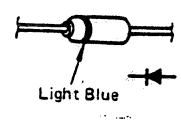
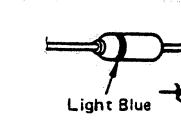
2SA1240 (F/G)

2SD2004 (P)  
2SB1328 (P)2SD1944  
2SB12872SD1763A (D)  
2SB1186A (D)2SA1492LB (O/P/Y)  
2SC3856LB (O/P/Y)2SA1302 (R/O)  
2SC3281 (R/O)

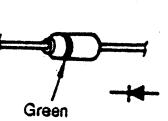
2SK184C (GR)/(BL)



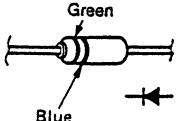
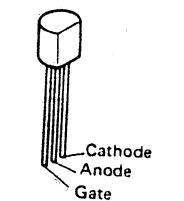
### ● Diode ( included LED )

1S2076A  
1SS270AHZ5C-1 HZ18-1  
HZ9B-2 HZS2B-1  
HZ12A-2 HZS15-2

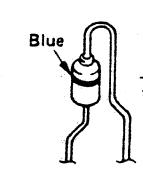
1SS198



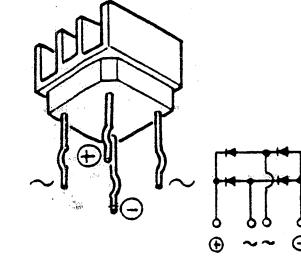
1SS82

SFOR1A42  
Thyristor

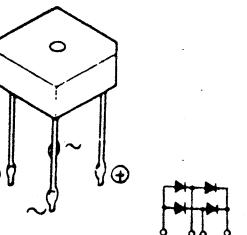
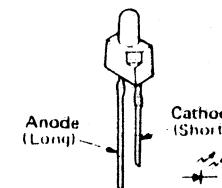
1SR35-200A



S10VB20F-15

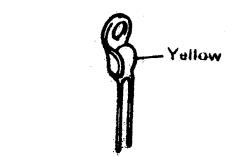


S10VB20

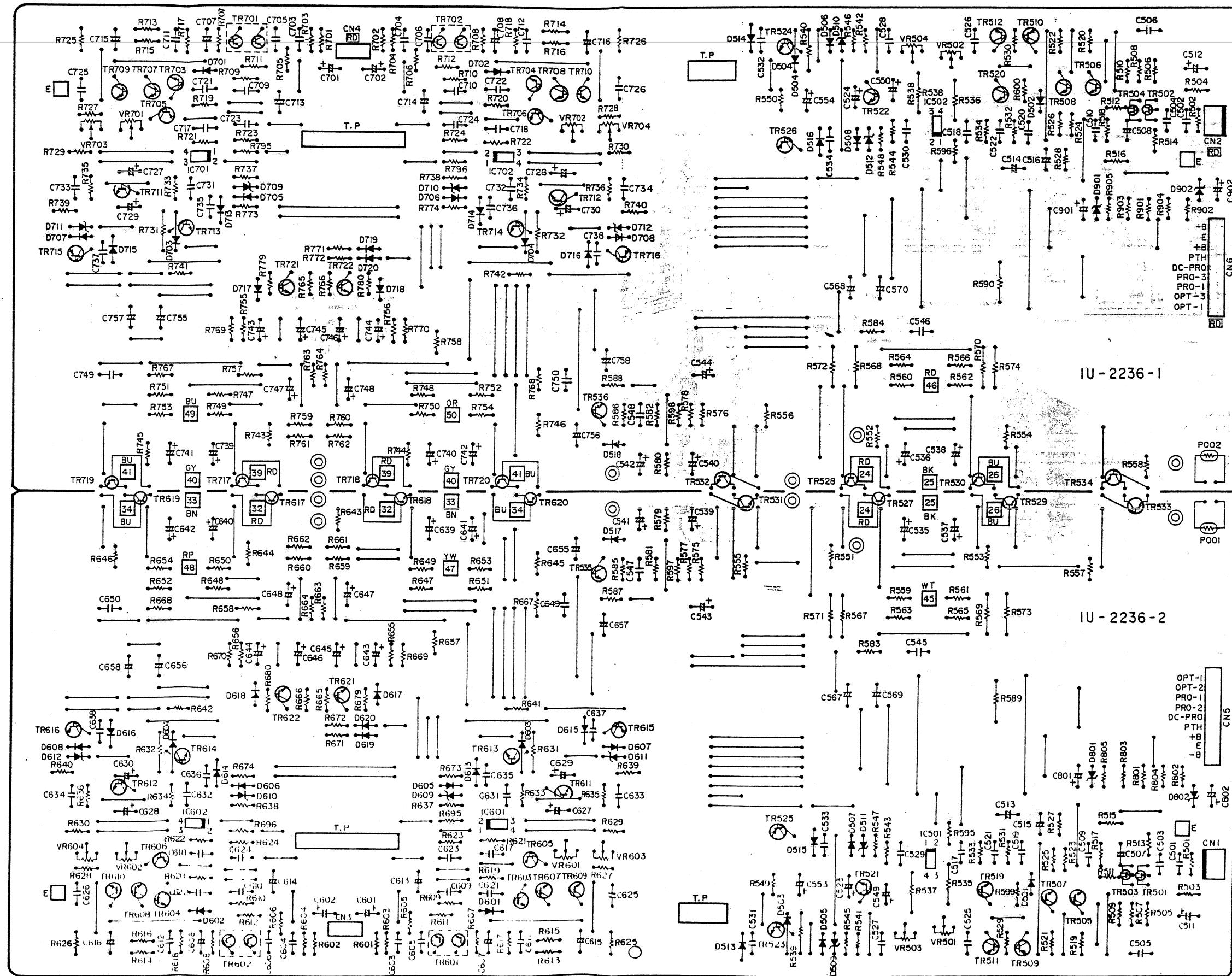
SEL-4117R (Red)  
SEL-4917D (Org)

### ● OTHERS

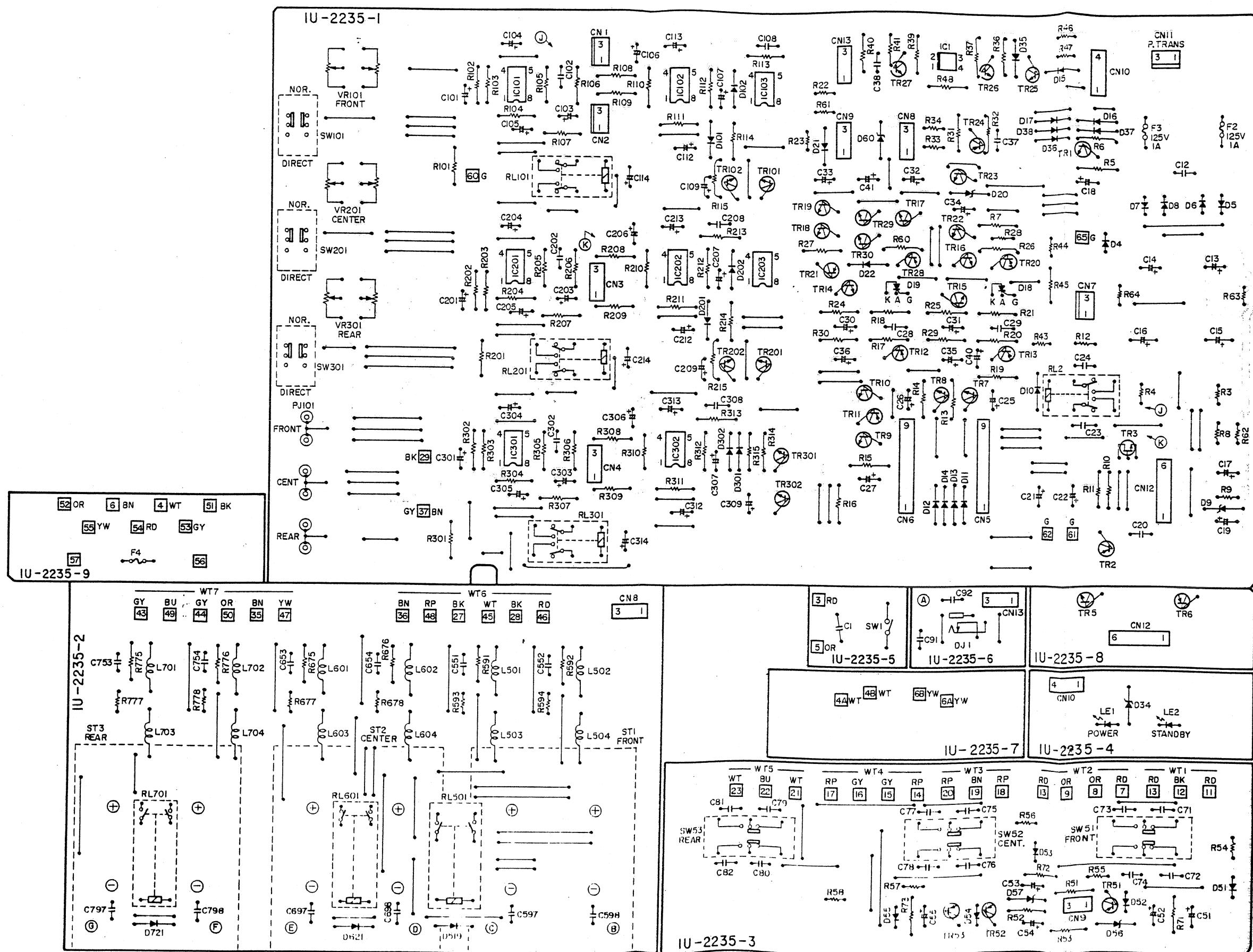
PTH487A01BD222TS



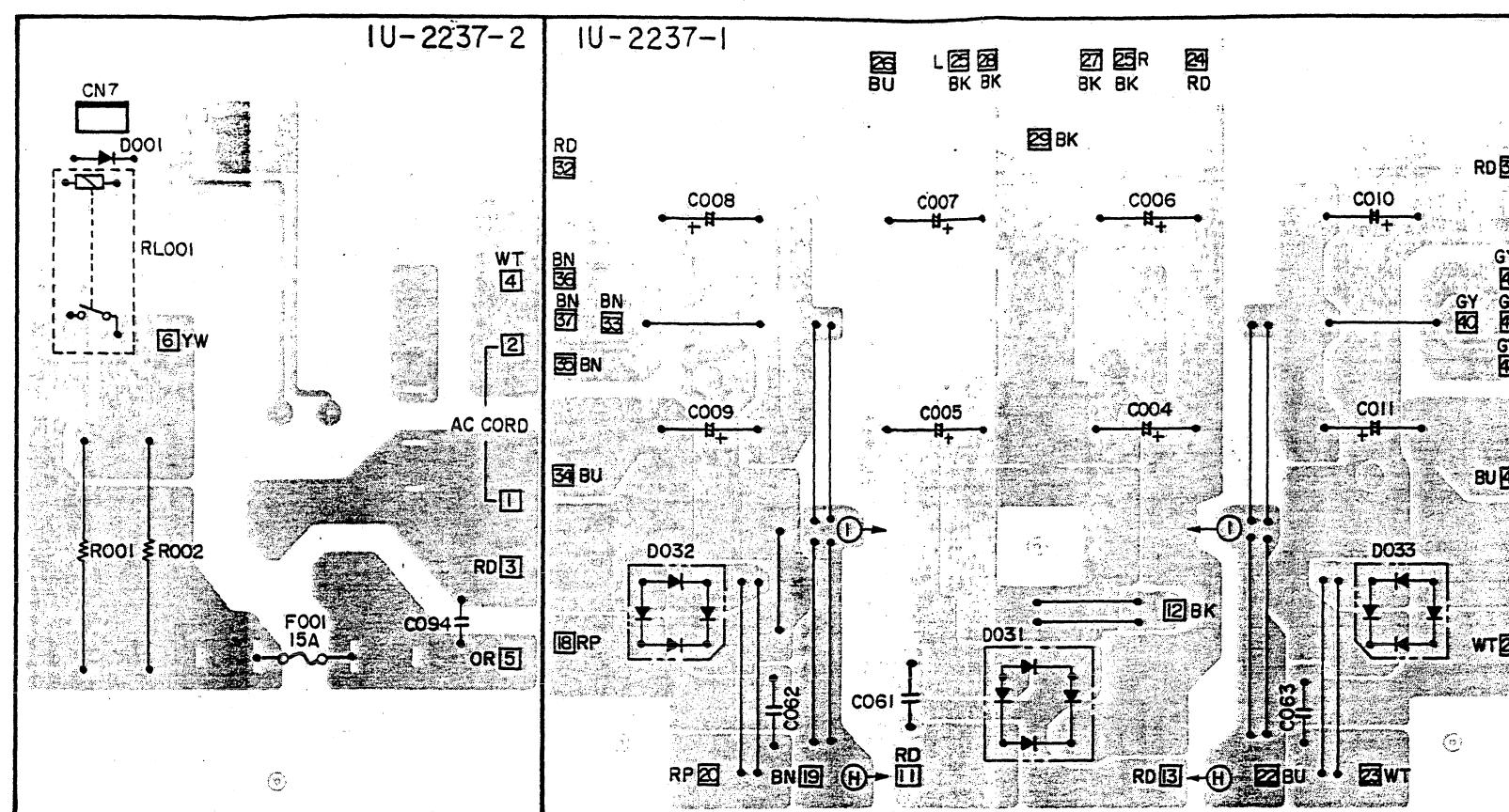
P.W.BOARD OF 1U-2236 POWER AMPLIFIER UNIT



## P.W.BOARD OF 1U-2235 INPUT/CONTROL UNIT



P.W.BOARD OF 1U-2237 POWER SUPPLY UNIT



## NOTE FOR PARTS LIST

- Part indicated with the mark "◎" are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "I" and "II" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

## WARNING:

Parts marked with this symbol have critical characteristics.  
Use ONLY replacement parts recommended by the manufacturer.

## • Resistors

| Ex.: RN            | 14K                   | 2E       | 182                      | G               | FR     |
|--------------------|-----------------------|----------|--------------------------|-----------------|--------|
| Type               | Shape and performance | Power    | Resist-ance              | Allowable error | Others |
| RD : Carbon        | 2B : 1/8W             | F : ±1%  | P : Pulse-resistant type |                 |        |
| RC : Composition   | 2E : 1/4W             | G : ±2%  | NL : Low noise type      |                 |        |
| RS : Metallic film | 2H : 1/2W             | J : ±5%  | NB : Non-burning type    |                 |        |
| RW : Winding       | 3A : 1W               | K : ±10% | FR : Fuse-resistor       |                 |        |
| RN : Metal film    | 3D : 2W               | M : ±20% | F : Lead wire forming    |                 |        |
| RK : Metal mixture | 3F : 3W               |          |                          |                 |        |
|                    | 3H : 5W               |          |                          |                 |        |

Resistance  
 1 8 2 → 1800 ohm = 1.8 kohm  
 Indicates number of zeros after effective number  
 2-digit effective number, decimal point indicated by R.  
 • Units: ohm

## • Capacitors

| Ex.: CE                         | 04W                   | 1H                  | 2R2                              | M               | BP | Others |
|---------------------------------|-----------------------|---------------------|----------------------------------|-----------------|----|--------|
| Type                            | Shape and performance | Dielectric strength | Capacitance                      | Allowable error |    |        |
| CE : Aluminum foil electrolyte  | 0J : 6.3V             | F : ±1%             | HS : High stability type         |                 |    |        |
| CA : Aluminum solid electrolyte | 1A : 10V              | G : ±2%             | BP : Non-polar type              |                 |    |        |
| CS : Tantalum electrolyte       | 1C : 18V              | J : ±5%             | HR : Ripple-resistant type       |                 |    |        |
| CQ : Film                       | 1E : 25V              | K : ±10%            | DL : For charge and discharge    |                 |    |        |
| CK : Ceramic                    | 1V : 35V              | M : ±20%            | HF : For assuring high frequency |                 |    |        |
| CC : Ceramic                    | 1H : 50V              | Z : ±80%            | U : UL part                      |                 |    |        |
| CP : Oil                        | 2A : 100V             | Z : -20%            | C : CSA part                     |                 |    |        |
| CM : Mica                       | 2B : 125V             | P : +100%           | W : UL-CSA type                  |                 |    |        |
| CF : Metallized                 | 2C : 160V             | -0%                 | F : Lead wire forming            |                 |    |        |
| CH : Metallized                 | 2D : 200V             | C : ±0.25pF         |                                  |                 |    |        |
|                                 | 2E : 250V             | D : ±0.5pF          |                                  |                 |    |        |
|                                 | 2H : 500V             | E : ± Others        |                                  |                 |    |        |
|                                 | 2J : 630V             |                     |                                  |                 |    |        |

Capacity  
 2 R 2 → 2.2μF  
 ↑ 1-digit effective number, decimal point indicated by R.  
 ↓ 2-digit effective number, decimal point indicated by R.  
 • Units: μF, (for P, pF (μμF))  
 • When the dielectric strength is indicated in AC, "AC" is included after

## 1U-2236 POWER AMP UNIT PARTS LIST

| Ref. No.                   | Part No.     | Part Name                     | Remarks |
|----------------------------|--------------|-------------------------------|---------|
| <b>SEMICONDUTORS GROUP</b> |              |                               |         |
| IC501,502                  | 262 0874 009 | IC TLP521-1(BL)               |         |
| 601,602                    |              |                               |         |
| 701,702                    |              |                               |         |
| TR501-504                  | 275 0055 015 | Transistor 2SK184C(GR)(BL)    |         |
| TR505-508                  | 273 0265 923 | Transistor 2SC1841(E/F)       |         |
| TR509-512                  | 273 0281 906 | Transistor 2SC2705(O)/(Y)TPE6 |         |
| TR519,520                  |              |                               |         |
| TR521,522                  | 273 0380 001 | Transistor 2SC4208A           |         |
| TR523,524                  | 274 0158 003 | Transistor 2SD1763A(D)        |         |
| TR525,526                  | 272 0115 008 | Transistor 2SB1186A(D)        |         |
| TR535,536                  | 273 0281 906 | Transistor 2SC2705(O)/(Y)TPE6 |         |
| TR601,602                  | 271 0253 006 | Transistor 2SA1240F/G         |         |
| TR603-610                  | 273 0281 906 | Transistor 2SC2705(O)/(Y)TPE6 |         |
| TR611,612                  | 273 0380 001 | Transistor 2SC4208A           |         |
| TR613,614                  | 274 0151 000 | Transistor 2SD2004(P)         |         |
| TR615,616                  | 272 0107 003 | Transistor 2SB1328(P)         |         |
| TR621,622                  | 273 0265 923 | Transistor 2SC1841(E/F)       |         |
| TR701,702                  | 271 0253 006 | Transistor 2SA1240F/G         |         |
| TR703-710                  | 273 0281 906 | Transistor 2SC2705(O)/(Y)TPE6 |         |
| TR711,712                  | 273 0380 001 | Transistor 2SC4208A           |         |
| TR713,714                  | 274 0151 000 | Transistor 2SD2004(P)         |         |
| TR715,716                  | 272 0107 003 | Transistor 2SB1328(P)         |         |
| TR721,722                  | 273 0265 923 | Transistor 2SC1841(E/F)       |         |

| Ref. No.  | Part No.     | Part Name                  | Remarks        |
|---|--------------|----------------------------|----------------|
| <b>RESISTOR GROUP (Not included Carbon Film, ±5% 1/4W type)</b> |              |                            |                |
| △R503,504   | 241 2381 904 | Carbon 3.3Kohm 1/4W (N.B.) | RD14B2E332JNBS |
| △R605-508   | 241 2381 946 | Carbon 4.7Kohm 1/4W (N.B.) | RD14B2E472JNBS |

| Ref. No.    | Part No.                | Part Name                          | Remarks        |
|-------------|-------------------------|------------------------------------|----------------|
| △R515,516   | 241 2379 987            | Carbon 1Kohm 1/4W (N.B.)           | RD14B2E102JNBS |
| △R519-522   | 241 2379 903            | Carbon 470ohm 1/4W (N.B.)          | RD14B2E471JNBS |
| △R523-526   | 241 2376 964            | Carbon 47ohm 1/4W (N.B.)           | RD14B2E470JNBS |
| △R527,528   | 241 2380 921            | Carbon 1.5Kohm 1/4W (N.B.)         | RD14B2E152JNBS |
| △R529,530   | 241 2377 934            | Carbon 91ohm 1/4W (N.B.)           | RD14B2E91QJNBS |
| △R531-534   | 241 2377 947            | Carbon 100ohm 1/4W (N.B.)          | RD14B2E101JNBS |
| △R541,542   | 241 2381 904            | Carbon 3.3Kohm 1/4W (N.B.)         | RD14B2E332JNBS |
| △R543,544   | 241 2379 987            | Carbon 1Kohm 1/4W (N.B.)           | RD14B2E102JNBS |
| △R549,550   | 241 2378 920            | Carbon 220ohm 1/4W (N.B.)          | RD14B2E221JNBS |
| △R551-558   | 241 2387 940            | Carbon 4.7ohm 1/4W (N.B.)          | RD14B2E47RJNBS |
| △R556,559   | 244 2043 982            | Metallic Film 0.22ohm 1W (N.B.)    | RS14B3A22JST   |
| △R574-578   | 241 2377 947            | Carbon 100ohm 1/4W (N.B.)          | RD14B2E101JNBS |
| △R579,580   | 241 2376 977            | Carbon 51ohm 1/4W (N.B.)           | RD14B2E51QJNBS |
| △R583,584   | 244 2050 904            | Metal Oxide Film 22ohm 1W (N.B.)   | RS14B3A220JST  |
| △R585,586   | 241 2382 903            | Carbon 8.2Kohm 1/4W (N.B.)         | RD14B2E822JNBS |
| △R597,598   | 241 2380 921            | Carbon 1.5Kohm 1/4W (N.B.)         | RD14B2E152JNBS |
| △R599,600   | 244 2052 999            | Metal Oxide Film 10Kohm 1W (N.B.)  | RS14B3A103JST  |
| △R611,612   | 241 2379 987            | Carbon 1Kohm 1/4W (N.B.)           | RD14B2E102JNBS |
| △R613-616   | 241 2381 946            | Carbon 4.7Kohm 1/4W (N.B.)         | RD14B2E472JNBS |
| △R619,620,  | 241 2379 929<br>623,624 | Carbon 560ohm 1/4W (N.B.)          | RD14B2E561JNBS |
| △R625,626   | 241 2378 959            | Carbon 300ohm 1/4W (N.B.)          | RD14B2E301JNBS |
| △R633-636   | 241 2377 947            | Carbon 100ohm 1/4W (N.B.)          | RD14B2E101JNBS |
| △R641,642   | 241 2378 962            | Carbon 330ohm 1/4W (N.B.)          | RD14B2E331JNBS |
| △R643-646   | 241 2387 908            | Carbon 1ohm 1/4W (N.B.)            | RD14B2E010JNBS |
| △R647-654   | 244 2055 912            | Metal Oxide Film 0.47ohm 1W (N.B.) | RS14B3AR47JST  |
| △R659-662   | 241 2377 947            | Carbon 100ohm 1/4W (N.B.)          | RD14B2E101JNBS |
| △R663,664   | 241 2376 977            | Carbon 51ohm 1/4W (N.B.)           | RD14B2E51QJNBS |
| △R665,666   | 241 2381 904            | Carbon 3.3Kohm 1/4W (N.B.)         | RD14B2E332JNBS |
| △R667,668   | 244 2050 904            | Metal Oxide Film 22ohm 1W (N.B.)   | RS14B3A220JST  |
| △R669,670   | 241 2382 903            | Carbon 8.2Kohm 1/4W (N.B.)         | RD14B2E822JNBS |
| △R679,680   | 241 2380 963            | Carbon 2.2Kohm 1/4W (N.B.)         | RD14B2E222JNBS |
| △R711,712   | 241 2379 987            | Carbon 1Kohm 1/4W (N.B.)           | RD14B2E102JNBS |
| △R713-716   | 241 2381 946            | Carbon 4.7Kohm 1/4W (N.B.)         | RD14B2E472JNBS |
| △R717,720   | 241 2379 929            | Carbon 560ohm 1/4W (N.B.)          | RD14B2E561JNBS |
| △R723,724   | 241 2379 929            | Carbon 560ohm 1/4W (N.B.)          | RD14B2E561JNBS |
| △R725,726   | 241 2378 959            | Carbon 300ohm 1/4W (N.B.)          | RD14B2E301JNBS |
| △R733-736   | 241 2377 947            | Carbon 100ohm 1/4W (N.B.)          | RD14B2E101JNBS |
| △R741,742   | 241 2378 962            | Carbon 330ohm 1/4W (N.B.)          | RD14B2E331JNBS |
| △R743-746   | 241 2387 908            | Carbon 1ohm 1/4W (N.B.)            | RD14B2E010JNBS |
| △R747-754   | 244 2055 912            | Metal Oxide Film 0.47ohm 1W (N.B.) | RS14B3AR47JST  |
| △R759-762</ |                         |                                    |                |

## 1U-2235 INPUT/CONTROL UNIT

| Ref. No. | Part No.     | Part Name                     | Remarks          |
|----------|--------------|-------------------------------|------------------|
| C725,726 | 253 4470 900 | Ceramic 10pF/500V             | CC45SL2H100DT    |
| C727,728 | 254 4260 948 | Electrolytic 1μF/50V          | CE04W1H010MT     |
| C729,730 | 254 4289 039 | Electrolytic 100μF/50V        | CE04W1H101M(AWF) |
| C731~734 | 253 1180 947 | Ceramic 0.0015μF/50V          | CK45B1H152KT     |
| C735~738 | 253 4480 903 | Ceramic 27pF/500V             | CC45SL2H270DT    |
| C739~742 | 254 4396 906 | Electrolytic 100μF/63V        | CE04W1H010MT     |
| C743~746 | 254 4260 993 | Electrolytic 22μF/50V         | CD041H220MT      |
| C747,748 | 254 4258 947 | Electrolytic 47μF/35V         | CE04W1V470MT     |
| C749,750 | 255 4213 972 | Plastic Film 0.01μF/50V       | CQ93M1H103JT     |
| C755~758 | 254 3046 901 | Electrolytic(Bipolar)1μF/100V | CE04D2A010MBPT   |
| C801,802 | 254 4356 027 | Electrolytic 22μF/50V         | CE04W1H220M(ARS) |
| C901,902 | 254 4356 027 | Electrolytic 22μF/50V         | CE04W1H220M(ARS) |

## OTHER PARTS

|           |              |                           |                  |
|-----------|--------------|---------------------------|------------------|
| P001,022  | 276 0289 004 | Posistor                  | PTH487A01BD222TS |
| CN001,002 | 205 0190 036 | 3P NH Connector Base      |                  |
| CN003     | 205 0234 031 | 3P EH Side Connector Base |                  |
| CN004     | 205 0588 033 | 3P EH Side Base(Red)      |                  |
| CN005     | 205 0233 090 | 9P EH Connector Base      |                  |
| CN006     | 205 0277 098 | 9P EH Connector Base(Red) |                  |

| Ref. No.                    | Part No.     | Part Name                      | Remarks |
|-----------------------------|--------------|--------------------------------|---------|
| <b>SEMICONDUCTORS GROUP</b> |              |                                |         |
| IC001                       | 262 0847 009 | IC Photo Coupler TLP521-1(BL)  |         |
| IC101                       | 263 0594 007 | IC NJM2068DAC                  |         |
| IC102                       | 265 0030 004 | IC NJM4558D-D                  |         |
| IC103                       | 263 0594 002 | IC NJM2082D                    |         |
| IC201                       | 263 0594 007 | IC NJM2068DAC                  |         |
| IC202                       | 265 0030 004 | IC NJM4558D-D                  |         |
| IC203                       | 263 0654 002 | IC NJM2082D                    |         |
| IC301                       | 263 0594 007 | IC NJM2068DAC                  |         |
| IC302                       | 265 0030 004 | IC NJM4558D-D                  |         |
| TR001                       | 273 0253 918 | Transistor 2SC2878(A/B)TPE2    |         |
| TR002                       | 271 0131 924 | Transistor 2SA988T(E/F)        |         |
| TR003                       | 275 0048 912 | FET 2SK381(B)/(C)T             |         |
| TR005                       | 274 0138 007 | Transistor 2SD1944             |         |
| TR006                       | 272 0119 004 | Transistor 2SB1287             |         |
| TR007~010                   | 273 0317 906 | Transistor 2SC2458B(L)TPE4     |         |
| TR011                       | 271 0191 916 | Transistor 2SA1048(GR)TPE4     |         |
| TR013                       | 273 0235 923 | Transistor 2SC1841T(E/F)       |         |
| TR014,015                   | 269 0025 901 | D.Transistor RN1202(10K-10K)T  |         |
| TR016                       | 273 0317 906 | Transistor 2SC2458(BL)TPE4     |         |
| TR017                       | 269 0025 901 | D.Transistor RN1202(10K-10K)T  |         |
| TR018                       | 273 0317 906 | Transistor 2SC2458(BL)TPE4     |         |
| TR019                       | 269 0025 901 | D.Transistor RN1202(10K-10K)T  |         |
| TR020,021                   | 269 0026 900 | D.Transistor RN2202(10K-10K)T  |         |
| TR022                       | 274 0111 901 | Transistor 2SD1111T            |         |
| TR023                       | 273 0235 923 | Transistor 2SC1841T(E/F)       |         |
| TR024                       | 271 0131 924 | Transistor 2SA988T(E/F)        |         |
| TR025                       | 274 0060 900 | Transistor 2SD667A(C)TZ        |         |
| TR026,027                   | 273 0317 906 | Transistor 2SC2458(BL)TPE4     |         |
| TR028                       | 269 0026 900 | D.Transistor RN2202(10K-10K)T  |         |
| TR029                       | 269 0025 901 | D.Transistor RN1202(10K-10K)T  |         |
| TR030                       | 273 0317 906 | Transistor 2SC2458(BL)TPE4     |         |
| TR051,053                   | 269 0026 900 | D.Transistor RN2202(10K-10K)T  |         |
| TR101                       | 273 0235 923 | Transistor 2SC1841T(E/F)       |         |
| TR102                       | 269 0067 901 | D.Transistor RN1205(2.2K-47K)T |         |
| TR201                       | 273 0235 923 | Transistor 2SC1841T(E/F)       |         |
| TR202                       | 269 0067 901 | D.Transistor RN1205(2.2K-47K)T |         |
| TR301                       | 273 0235 923 | Transistor 2SC1841T(E/F)       |         |
| TR302                       | 269 0067 901 | D.Transistor RN1205(2.2K-47K)T |         |
| D004~008                    | 276 0348 000 | Diode S2K20F                   |         |
| D009                        | 276 0249 921 | Zener Diode HZ18-1TE           |         |
| D010~017                    | 276 0049 914 | Diode 1S2076A                  |         |
| D018,019                    | 276 0016 904 | Diode SF0R1A42(TPE2)           |         |
| D020                        | 276 0318 001 | Zener Diode HZ12A-2            |         |
| D021,022                    | 276 0049 914 | Diode 1S2076A                  |         |
| D034                        | 276 0218 936 | Zener Diode HZ9B2-TE           |         |
| D035~038                    | 276 0049 914 | Diode 1S2076A                  |         |
| D051~055                    | 276 0253 905 | Diode 1SR35-200A(T93X)         |         |
| D056,057                    | 276 0236 934 | Zener Diode HZ5C-1TE           |         |
| D060                        | 276 0318 001 | Zener Diode HZ12A-2            |         |
| D101,102                    | 276 0049 914 | Diode 1S2076A                  |         |
| 201,202                     |              |                                |         |
| 301,302                     |              |                                |         |
| 519,621                     |              |                                |         |
| 721                         |              |                                |         |

| Ref. No.  | Part No.     | Part Name                                       | Remarks          |
|---|--------------|---|------------------|
| LE001   | 393 9420 907 | LED SEL4117R-T                                  | (Red)            |
| LE002   | 393 9420 910 | LED SEL4917D-T                                  | (Orange)         |
| <b>RESISTOR GROUP (Not included Carbon Film, ±5% 1/4W type)</b> |              |   |                  |
| ▲R003,004   | 241 2387 908 | Carbon 1ohm 1/4W<br>(N.B)                       | RD14B2E010JNBS   |
| ▲R008   | 244 2052 902 | Metal Oxide Film 2.7Kohm 1W<br>(N.B)            | RS14B3A272JS     |
| ▲R009   | 244 2051 990 | Metal Oxide Film 4.7Kohm 1W<br>(N.B)            | RS14B3A472JS     |
| ▲R012   | 241 2379 916 | Carbon 510ohm 1/4W<br>(N.B)                     | RD14B2E511JNBS   |
| ▲R022,023   | 241 2380 905 | Carbon 1.2Kohm 1/4W<br>(N.B)                    | RD14B2E122JNBS   |
| ▲R028   | 244 2051 974 | Metal Oxide Film 1.2Kohm 1W<br>(N.B)            | RS14B3A102JS     |
| ▲R033,034   | 244 2052 931 | Metal Oxide Film 390ohm 1W<br>(N.B)             | RS14B3A391JS     |
| ▲R043   | 244 2050 975 | Metal Oxide Film 1.3Kohm 1W<br>(N.B)            | RS14B3A132JS     |
| ▲R044~047   | 244 2052 902 | Metal Oxide Film 2.7Kohm 1W<br>(N.B)            | RS14B3A272JS     |
| ▲R054~058   | 241 2387 908 | Carbon 1ohm 1/4W<br>(N.B)                       | RD14B2E010JNBS   |
| ▲R061   | 241 2380 905 | Carbon 1.2Kohm 1/4W<br>(N.B)                    | RD14B2E122JNBS   |
| ▲R062   | 244 2052 902 | Metal Oxide Film 2.7Kohm 1W<br>(N.B)            | RS14B3A272JS     |
| ▲R063   | 244 2051 987 | Metal Oxide Film 4.7Kohm 1W<br>(N.B)            | RS14B3A4R7JS     |
| ▲R064   | 244 2043 937 | Metal Oxide Film 10ohm 1W<br>(N.B)              | RS14B3A100JS     |
| ▲R534,593   | 244 2050 904 | Metal Oxide Film 22ohm 1W<br>(N.B)              | RS14B3A220JS     |
| VR101,201   | 211 9106 000 | Variable 100Kohm                                | V1620V30FB104    |
| VR301   |              |   |                  |
| <b>CAPACITORS GROUP</b>   |              |   |                  |
| ▲C001   | 253 8011 705 | Ceramic 0.01μF/250VAC<br>(Multi-Voltage Models) | CK45F2EAC103ZC   |
| C012  | 255 6167 000 | Polystyrene Film 0.01μF/125V                    | CO09S2B103K(B)   |
| C013,014  | 254 4262 784 | Electrolytic 470μF/6.3V                         | CE04W1J471MC     |
| C015,016  | 254 4397 701 | Electrolytic 2200μF/6.3V                        | CE04W1J222MC     |
| C017  | 254 4261 921 | Electrolytic 100μF/50V                          | CE04W1H101MT     |
| C018  | 256 1030 012 | Metalized 1μF/100V                              | CF39W2A105J      |
| C019  | 254 4291 700 | Electrolytic 10μF/100V                          | CE04W2A100M(AWF) |
| C020  | 253 4494 902 | Ceramic 100pF/500V                              | CC45SL2H101JT    |
| C021,022  | 254 4356 027 | Electrolytic 22μF/500V                          | CE04W1H220M(ARS) |
| C023,024  | 253 1161 905 | Ceramic 0.0047μF/500V                           | CK45E2H472PT     |
| C025,026  | 254 4254 909 | Electrolytic 10μF/16V                           | CE04W1H100MT     |
| C027  | 254 4250 932 | Electrolytic 220μF/6.3V                         | CE04W0J221MT     |
| C028,029  | 253 1181 904 | Ceramic 0.01μF/50V                              | CK45F1H103ZT     |
| C030  | 254 4254 938 | Electrolytic 47μF/16V                           | CE04W1C470MT     |

| Ref. No. | Part No.     | Part Name               | Remarks      |
|----------|--------------|-------------------------|--------------|
| C031     | 254 4250 932 | Electrolytic 220μF/6.3V | CE04W0J221MT |
| C032,033 | 254 4256     |                         |              |

## 1U-2237 POWER SUPPLY UNIT

| Ref. No.          | Part No.     | Part Name                  | Remarks | Ref. No. | Part No.     | Part Name                                | Remarks              |
|-------------------|--------------|----------------------------|---------|----------|--------------|--|----------------------|
| DJ001             | 204 8101 008 | 2P Power Jack              |         | D001     | 276 0049 011 | Diode 1S2076A                            |                      |
| PJ101             | 204 8288 002 | 6P Connector Base          |         | D031     | 276 0579 002 | Diode S10VB20F-15                        |                      |
| ST001-003         | 205 0671 005 | 4P Terminal                |         | D032,033 | 276 0586 008 | Diode S10VB20                            |                      |
| WT001,003,<br>005 | 205 0075 038 | 3P Terminal                |         | R001,002 | 243 2079 021 | Wire Wound Resistor(Cement)<br>33ohm/10W | RW78A4A330K=(UL)     |
| WT002,004         | 205 0075 041 | Wrapping Terminal          |         | C004,005 | 254 4370 715 | Electrolytic Capacitor<br>8200μF/63V     | CE04W1J822MC(DL)     |
| WT006,007         | 205 0075 067 | 6P Wrapping Terminal       |         | C006,007 | 254 4412 000 | Electrolytic Capacitor<br>8200μF/63V     | CE04W1J822MC(ARS)    |
| CN001,002         | 205 0190 036 | 3P NH Connector Base       |         | C008-011 | 254 4365 720 | Electrolytic Capacitor<br>12000μF/56V    | CE04W==123MC(DL)     |
| CN003             | 205 0233 032 | 3P EH Connector Base       |         | C061-063 | 256 1043 711 | Metalized Capacitor<br>0.47μF/250V       | CF93B2E474K          |
| CN004             | 205 0277 030 | 3P EH Connector Base(Red)  |         | △C093    | 253 8011 006 | Ceramic Capacitor<br>0.01μF/250VAC       | CK45F2EAC103Z        |
| CN005             | 205 0233 090 | 9P EH Connector Base       |         | C094,095 | 255 6167 000 | Polystyrene Film Capacitor<br>1μF/125V   | CC09S2B105K(B)       |
| CN006             | 205 0277 098 | 9P EH Connector Base(Red)  |         | RL001    | 214 0117 000 | Relay (VS48MBUL TV5)                     |                      |
| CN007             | 205 0190 036 | 3P NH Connector Base       |         | CN007    | 205 0190 036 | 3P NH Connector Base                     |                      |
| CN008             | 205 0587 034 | 3P EH Slide Base(Blk)      |         | △F001    | 206 1051 030 | Fuse 15A                                 | U.S.A. Models        |
| CN008             | 205 0278 039 | 3P EH Connector Base(Blk)  |         | △F001    | 206 1017 030 | Fuse 15A                                 | Multi-Voltage Models |
| CN009             | 205 0296 037 | 3P EH Connector Base(Yel)  |         |          |              |  |                      |
| CN010             | 205 0234 044 | 4P EH Slide Connector Base |         |          |              |  |                      |
| CN010             | 205 0233 045 | 4P EH Connector Base       |         |          |              |  |                      |
| CN011             | 205 0190 036 | 3P NH Connector Base       |         |          |              |  |                      |
| CN012             | 204 0339 001 | 6P EH-SCN Connector Cord   |         |          |              |  |                      |
| CN012             | 205 0233 061 | 6P EH Connector Base       |         |          |              |  |                      |
| CN013             | 205 0276 031 | 3P EH Connector Base(Blu)  |         |          |              |  |                      |

## PARTS LIST OF EXPLODED VIEW

| Ref. No. | Part No.     | Part Name                | Remarks              |
|----------|--------------|--------------------------|----------------------|
| ① 1      | 412 9294 007 | SWITCH COVER             |                      |
| ② 2      | 102 9036 106 | TOP COVER                | (Gold)               |
| ② 2      | 102 9036 122 | TOP COVER                | (Black)              |
| ③ 3      | 461 9025 032 | RUBBER SHEET             |                      |
| ④ 4      | 122 0095 001 | SPACER                   |                      |
| ⑤ 5      | 122 9006 017 | SPACER                   |                      |
| ⑥ 6      | 461 9012 016 | CUSHION                  |                      |
| ⑦ 7      | 112 0555 007 | VOLUME KNOB(B)           |                      |
| ⑧ 8      | 113 9242 107 | PUSH KNOB(P) ASS'Y       | (Gold)               |
| ⑧ 8      | 113 9242 110 | PUSH KNOB(P) ASS'Y       | (Black)              |
| ⑨ 9      | 144 9138 008 | FRONT PANEL ASS'Y        | (Gold)               |
| ⑨ 9      | 144 9138 215 | FRONT PANEL ASS'Y        | (Black)              |
| ⑩ 10     | 144 9137 106 | SIDE ESC. BAR            | (Gold)               |
| ⑩ 10     | 144 9137 119 | SIDE ESC. BAR            | (Black)              |
| ⑪ 11     | 412 9292 009 | ESC. BRACKET             |                      |
| ⑫ 12     | 412 9293 008 | ESC. SUPPORTER           |                      |
| ⑬ 13     | 477 0096 007 | PUSH RIVET               |                      |
| ⑭ 14     | 412 9295 006 | HEAT SINK SUPPORTER      |                      |
| ⑮ 15     | 461 0390 070 | RUBBER SHEET             |                      |
| ⑯ 16     | 415 9061 006 | INSULATING COVER         |                      |
| ⑯ 17     | 125 9004 047 | UL TUBE                  |                      |
| ⑯ 18     | 233 9645 008 | POWER TRANSFORMER        | U.S.A. Models        |
| ⑯ 18     | 233 9643 000 | POWER TRANSFORMER        | Multi-Voltage Models |
| ⑯ 19     | 445 0048 016 | CORD HOLDER              | L50                  |
| ⑯ 20     | 443 0900 129 | P.W.B. SUPPORTER         |                      |
| ⑯ 21     | 412 9274 014 | P.W.B. BRACKET           |                      |
| ⑯ 22     | 412 9288 107 | HEAT SINK BRACKET(REA)   |                      |
| ⑯ 23     | 412 9291 107 | HEAT SINK BRACKET(LEFT)  |                      |
| ⑯ 24     | 412 9290 108 | HEAT SINK BRACKET(RIGHT) |                      |
| ⑯ 25     | 417 9062 001 | CU PLATE                 |                      |
| ⑯ 26     | 417 9061 109 | HEAT SINK                |                      |
| ⑯ 27     | 415 0234 007 | INSULATING SHEET         |                      |
| ⑯ 28     | 415 9059 005 | INSULATING SHEET         |                      |
| ⑯ 29     | 273 0355 077 | TRANSISTOR 2SC3856LB     |                      |
| ⑯ 30     | 271 0221 009 | TRANSISTOR 2SA1492LB     |                      |
| ⑯ 31     | 273 0391 003 | TRANSISTOR 2SC3291       |                      |
| ⑯ 32     | 271 0245 001 | TRANSISTOR 2SA1302       |                      |
| ⑯ 33     | 417 9063 000 | HEAT SINK                |                      |
| ⑯ 34     | 412 9289 106 | LEVEL VOLUME BRACKET     |                      |
| ⑯ 35     | 461 0114 023 | CUSHION                  |                      |
| ⑯ 36     | 415 9016 019 | P.C.B. HOLDER            |                      |
| ⑯ 37     | 443 9015 002 | P.W. SPACER              |                      |
| ⑯ 38     | 104 9026 202 | FOOT                     |                      |
| ⑯ 39     | 412 9081 207 | SUPPORT BRACKET          |                      |
| ⑯ 40     | 105 9185 108 | BOTTOM COVER             |                      |
| ⑯ 41     | 414 9117 009 | SAFETY SHEET             |                      |
| ⑯ 42     | 445 0071 009 | CORD BUSH                | U.S.A. Models        |
| ⑯ 43     | 206 2060 002 | AC CORD(POLARIZED)       | Multi-Voltage Models |
| ⑯ 43     | 206 2083 005 | AC CORD WITH PLUG        |                      |
| ⑯ 44     | 415 9032 006 | P.C.B. HOLDER(T)         |                      |
| ⑯ 45     | 412 9287 108 | CHEMI. CON. BRACKET      |                      |
| ⑯ 46     | 105 9208 108 | REAR PANEL               | U.S.A. Models        |
| ⑯ 46     | 105 9205 101 | REAR PANEL               | Mulch-Voltage Models |
| ⑯ 47     | 411 9099 102 | SHIELD CHASSIS           |                      |
| ⑯ 48     | 411 9098 103 | TRANS. CHASSIS           |                      |
| ⑯ 49     | 411 9097 104 | FRONT CHASSIS            |                      |
| ⑯ 50     | 412 9296 005 | BRACKET(A)               |                      |
| ⑯ 51     | 393 9420 907 | LED(RED)                 | SEL4117R-T(LE1)      |
| ⑯ 52     | 393 9420 910 | LED(ORG)                 | SEL4917D-T(LE2)      |
| ⑯ 53     | 272 0119 004 | TRANSISTOR 2SB1287       |                      |

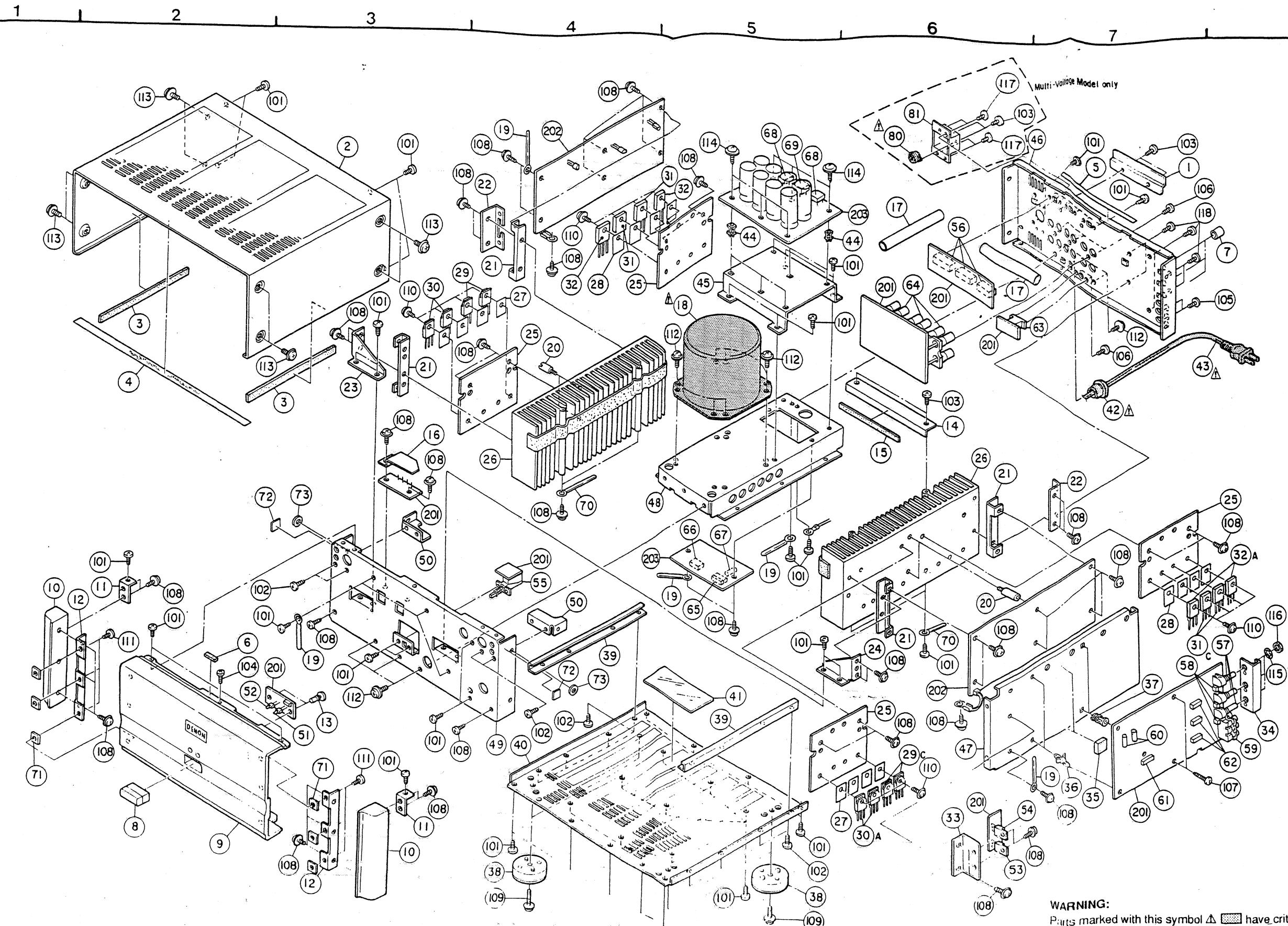
## PARTS LIST OF PACKING &amp; ACCESSORIES

| Ref. No.     | Part No.     | Part Name               | Remarks         | Q'ty |
|--------------|--------------|-------------------------|-----------------|------|
| ①            | 504 7102 003 | STYRENE PAPER (800x650) |                 | 1    |
| ①            | 504 7102 032 | STYRENE PAPER (350x250) | FOR AC CORD     | 1    |
| 505 0075 051 | 505 8023 076 | CABINET COVER           |                 | 1    |
| 505 8023 076 | 503 9219 100 | ENVELOPE                | For Accessories | 1    |
| 503 9219 100 | 503 9220 102 | CUSHION (L)             |                 | 1    |
| 503 9220 102 | 502 9122 003 | CUSHION (R)             |                 | 1    |
| 502 9122 003 | 501 9191 031 | CUSHION (REAR)          |                 | 1    |
| 501 9191 031 | 203 2247 004 | CARTON CASE             |                 | 1    |
| 203 2247 004 | 511 9315 005 | REMOTE PLUG CORD        |                 | 1    |
| 511 9315 005 | 513 9160 007 | INST. MANUAL            |                 | 1    |
| 513 9160 007 | 513 9111 001 | NOTICE SHEET            |                 | 1    |
| 513 9111 001 | 513 9111 001 | COLOR LABEL (Gold)      | (Gold)          | 1    |

## WARNING:

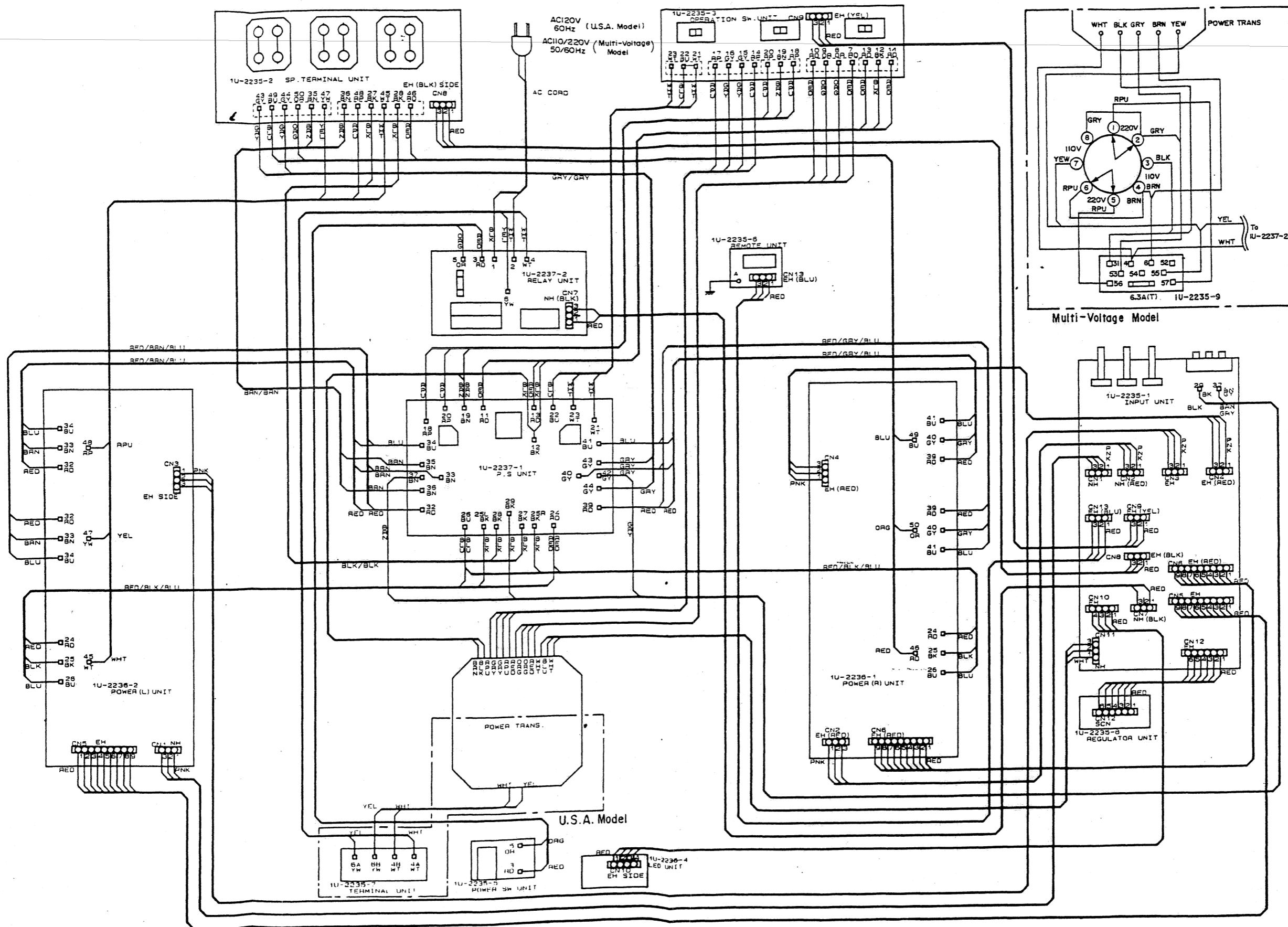
- Parts marked with "Δ" and/or shading have special characteristics important to safety.  
Be sure to use the specified parts for replacement.
- Part indicated with the mark "◎" are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- (Black) in the remarks column refers models with black front panels,  
(Gold) to models with gold front panels.

## EXPLODED VIEW



**WARNING:**  
Parts marked with this symbol have critical characteristics.  
Use ONLY replacement parts recommended by the manufacturer.

## WIRING DIAGRAM



# SCHEMATIC DIAGRAM

1

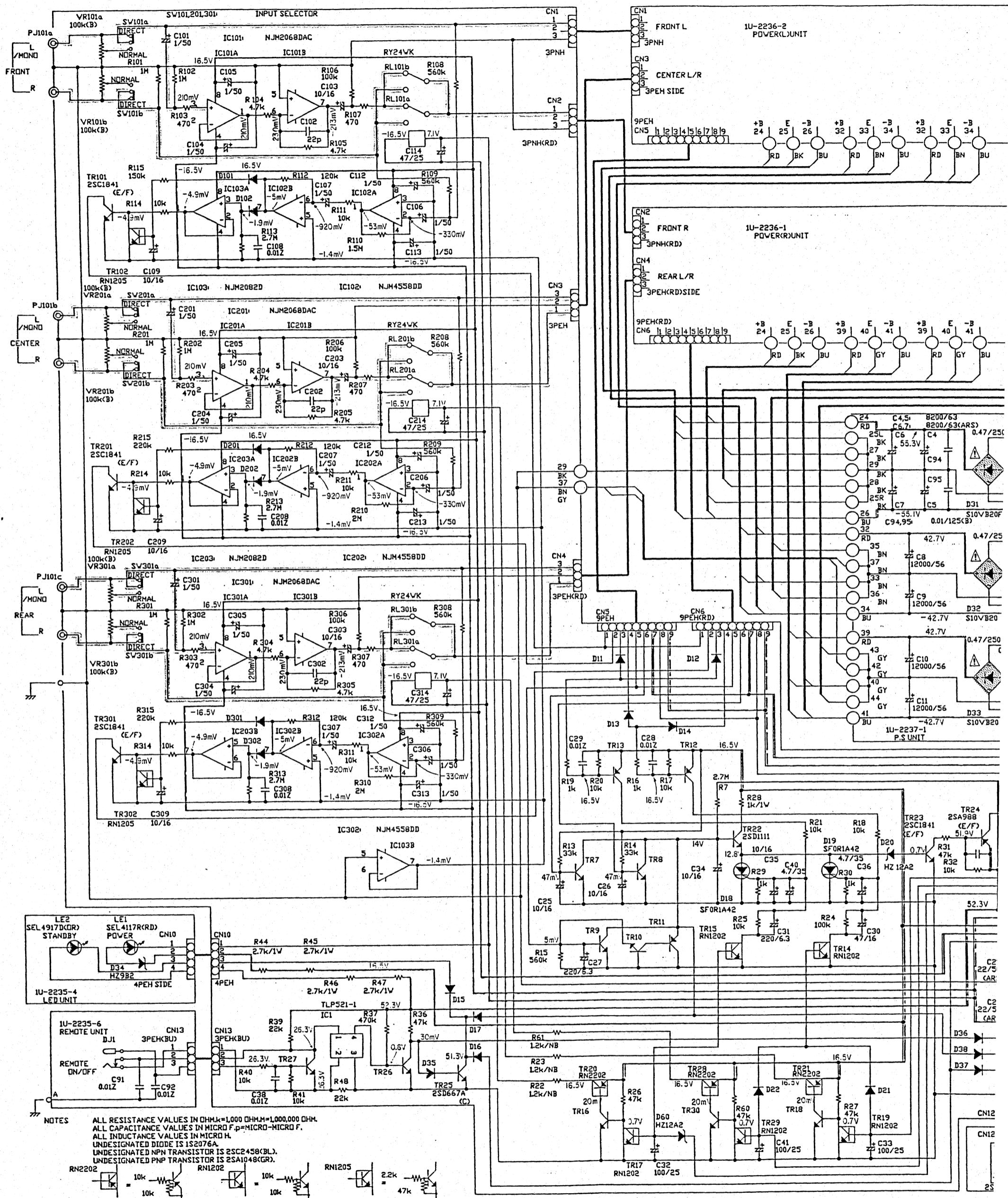
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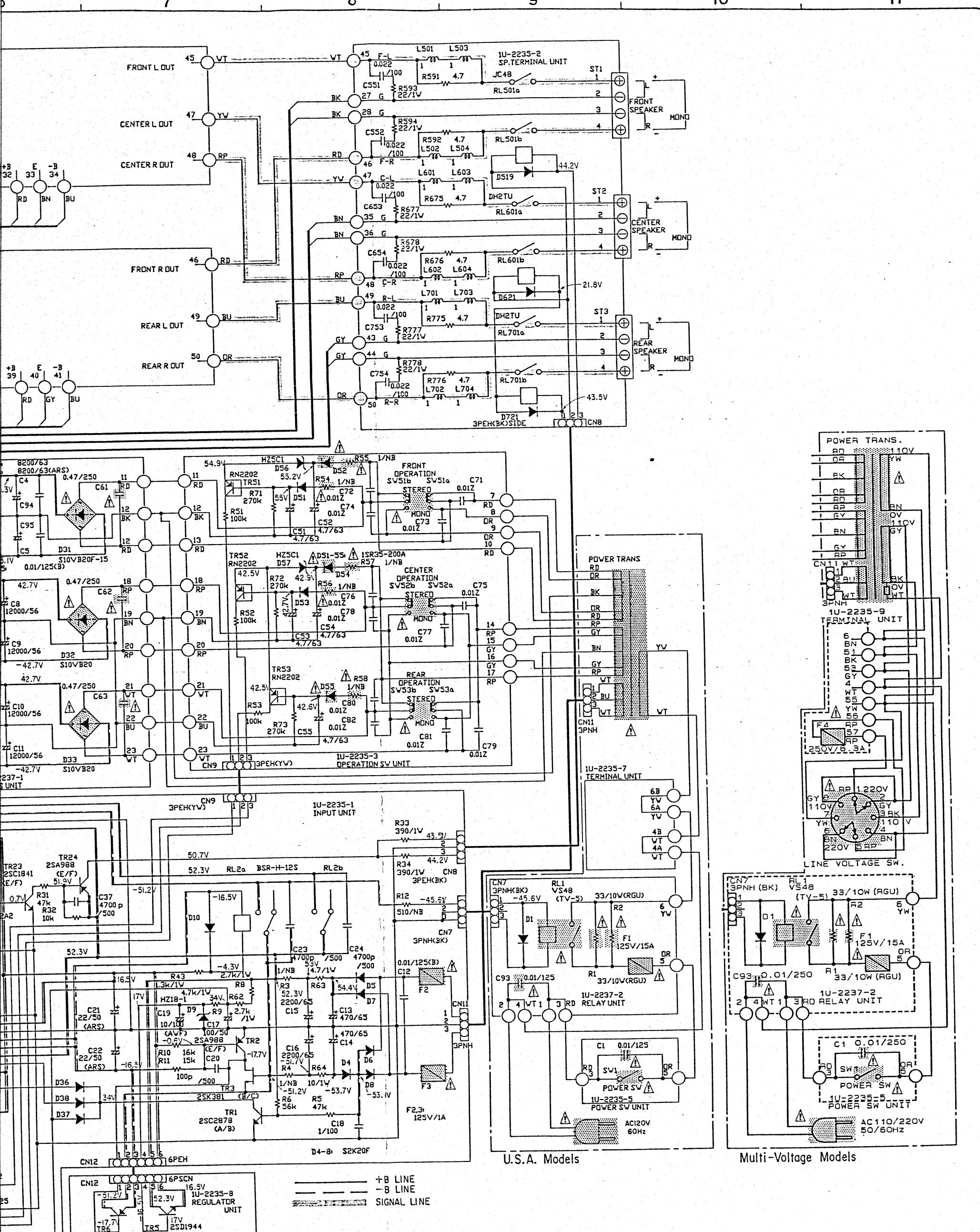
5

6



**NOTES:**

- ALL RESISTANCE VALUES IN OHM.
- ALL CAPACITANCE VALUES IN MICRO F.
- EACH VOLTAGE AND CURRENT ARE SUBJECT TO CIRCUIT AND PARTS ARE SUBJECT



**WARNING:**  
Parts marked with this symbol  have critical characteristics.  
Use ONLY replacement parts recommended by the manufacturer.

**CAUTION:**  
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 millamps, or if the resistance from chassis to either side of the power cord is less than 240 kohms, the unit is defective.

**WARNING:**  
DO NOT return the unit to the customer until the problem is located and corrected.

CE VALUES IN OHM.  $k=1,000$  OHM,  $M=1,000,000$  OHM  
ANCE VALUES IN MICRO FARAD.  $P=MICRO-MICRO$  FARAD  
E AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.  
ARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

## **SCHEMATIC DIAGRAM**

## NOTES

**NOTES**  
ALL RESISTANCE VALUES IN OHM. K=1,000 OHM, M=1,000,000 OHM  
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD  
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.  
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

**WARNING:**  
Parts marked with this symbol  have critical characteristics.  
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